eBOX639-825-FL Series
Embedded System
User's Manual

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Safety Precautions

Before getting started, please read the following important safety precautions.

1. The eBOX639-825-FL does not come equipped with an operating system. An operating system must be loaded first before installing any software into the computer.
2. Be sure to ground yourself to prevent static charge when installing the internal components. Use a grounding wrist strap and place all electronic components in any static-shielded devices. Most electronic components are sensitive to static electrical charge.
3. Disconnect the power cord from the eBOX639-825-FL before making any installation. Be sure both the system and the external devices are turned OFF. Sudden surge of power could ruin sensitive components. Make sure the eBOX639-825-FL is properly grounded.
4. Make sure the voltage of the power source is correct before connecting the equipment to the power outlet.
5. Turn OFF the system power before cleaning. Clean the system using a cloth only. Do not spray any liquid cleaner directly onto the screen.
6. Do not leave this equipment in an uncontrolled environment where the storage temperature is below -20℃ or above 80℃. It may damage the equipment.
7. Do not open the system's back cover. If opening the cover for maintenance is a must, only a trained technician is allowed to do so. Integrated circuits on computer boards are sensitive to static electricity. To avoid damaging chips from electrostatic discharge, observe the following precautions:
   - Before handling a board or integrated circuit, touch an unpainted portion of the system unit chassis for a few seconds. This will help to discharge any static electricity on your body.
   - When handling boards and components, wear a wrist-grounding strap, available from most electronic component stores.

Classification

1. Degree of production against electric shock : not classified
2. Degree of protection against the ingress of water : IP30
3. Equipment not suitable for use in the presence of a flammable anesthetic mixture with air or with oxygen or nitrous oxide.
4. Mode of operation : Continuous

General Cleaning Tips

You may need the following precautions before you begin to clean the computer. When you clean any single part or component for the computer, please read and understand the details below fully.

When you need to clean the device, please rub it with a piece of dry cloth.

1. Be cautious of the tiny removable components when you use a vacuum cleaner to absorb the dirt on the floor.
2. Turn the system off before you start to clean up the component or computer.
3. Never drop the components inside the computer or get circuit board damp or wet.
4. Be cautious of all kinds of cleaning solvents or chemicals when you use it for the sake of cleaning. Some individuals may be allergic to the ingredients.
5. Try not to put any food, drink or cigarette around the computer.

Cleaning Tools:

Although many companies have created products to help improve the process of cleaning your computer and peripherals users can also use household items to clean their computers and peripherals. Below is a listing of items you may need or want to use while cleaning your computer or computer peripherals.

Keep in mind that some components in your computer may only be able to be cleaned using a product designed for cleaning that component, if this is the case it will be mentioned in the cleaning.

- Cloth: A piece of cloth is the best tool to use when rubbing up a component. Although paper towels or tissues can be used on most hardware as well, we still recommend you to rub it with a piece of cloth.
- Water or rubbing alcohol: You may moisten a piece of cloth a bit with some water or rubbing alcohol and rub it on the computer. Unknown solvents may be harmful to the plastics parts.
- Vacuum cleaner: Absorb the dust, dirt, hair, cigarette particles, and other particles out of a computer can be one of the best methods of cleaning a computer. Over time these items can restrict the airflow in a computer and cause circuitry to corrode.
- Cotton swabs: Cotton swaps moistened with rubbing alcohol or water are excellent tools for wiping hard to reach areas in your keyboard, mouse, and other locations.
- Foam swabs: Whenever possible it is better to use lint free swabs such as foam swabs.

***Note*: We strongly recommended that you should shut down the system before you start to clean any single components.**

Please follow the steps below:

1. Close all application programs
2. Close operating software
3. Turn off power switch
4. Remove all device
5. Pull out power cable

Scrap Computer Recycling

If the computer equipment's need the maintenance or are beyond repair, we strongly recommended that you should inform your Axiomtek distributor as soon as possible for the suitable solution. For the computers that are no longer useful or no longer working well, please contact your Axiomtek distributor for recycling and we will make the proper arrangement.

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CHAPTER 1
INTRODUCTION

This chapter contains general information and detailed specifications of the eBOX639-825-FL. The Chapter 1 includes the following sections:

- General Description
- System Specification
- Dimensions
- I/O Outlets
- Package List

1.1 General Description

The eBOX639-825-FL is an embedded system that supports onboard Intel® Atom™ processor D525 (1M Cache, 1.8 GHz) processors to provide Windows 7, Windows Vista, Windows XPE, Windows XP, Windows WinCE embedded, Linux, suitable for the most endurable operation. It features fan less design with full feature I/O, two 240-pin unbuffered DIMM socket for singe channel DDR3-667/800 MHz memory, and enhanced system dependability by built-in Watchdog Timer.

- Features
  1. Intel® NM10 chipset
  2. Support Intel® Atom™ Processor D525 (1M Cache, 1.8 GHz)
  3. Maximum to 4GB DDR3 667/800 MHz memory for D525
  4. Support two 32bit/33MHz PCI slots support max. length of 200 mm of PCB boards expansion
  5. Supports 6 USB 2.0 ports
  6. Supports 6 RS-232 ports
  7. Supports dual 10/100/1000Mbps Ethernet port
  8. One 2.5" SATA HDD drive bay
  9. One PS/2 keyboard port and mouse Port
  10. One SMA antenna opening
  11. One Audio (Mic-in / Line-out)
  12. Watchdog timer
  13. Din-rail mount (optional)
  14. Wall mount (optional)
  15. VESA mount (optional)
  16. Express Mini Card Module (optional)
  17. Antenna (optional)
  18. AC power kit (optional)
  19. AC power cord (optional)

- Reliable and Stable Design

  The eBOX639-825-FL adopts the advanced cooling system and supporting the SSD, which makes it especially suitable for vibration environments, best for industrial automation, digital signage and gaming application.

- Embedded O.S. Supported

  The eBOX639-825-FL not only supports Windows 7, Windows Vista, Windows XP, but also supports embedded OS, such as Windows XP embedded, WinCE and Linux .

1.2 System Specifications

1.2.1 CPU

- **CPU**
  Onboard Intel® Atom™ Processor D525 (1M Cache, 1.8 GHz)

- **BIOS**
  AMI 8Mbit SPI Flash, DMI, Plug and Play

- **System Memory**
  Maximum to 4GB DDR3 667/800 MHz memory for D525
  Two 240-pin unbuffered DDR3 DIMM sockets

Memory Capacity

DIMM Socket Location	DDR3 Module	Total Memory Size
DDR3_A1	512MB/1GB/2GB	Max is 4GB.
DDR3_A2	512MB/1GB/2GB	

1.2.2 I/O System

- **6 x RS-232**
- **1 x VGA**
- **1 x Audio (Mic-in/Line-out)**
- **1 x PS/2 Keyboard**
- **1 x PS/2 Mouse**
- **2 x 10/100/1000Mbps RJ45 Ethernet**
- **6 x USB**
- **1 x SMA opening for antenna**
- **1 x VDC power input connector**

1.2.3 System Specification

- **Watchdog Timer**

Reset supported; 255 levels, 1~255 sec.

- **Power Supply**

DC ATX 107W

Input: DC 16~28VDC

Output: +3.3V@6A, +5V@9A, +12V@3A, -12V@0.1A, +5Vsb@1A

- **Operation Temperature**

-10℃ ~ 55℃ (14 ºF ~ 130ºF), D525 with W.T. SSD

- **Storage Temperature**

-20℃ ~ 80℃ (-4 ºF ~ 176ºF)

- **Humidity**

10% ~ 90% (non-condensation)

- **Vibration Endurance**

2Grm w/ SSD(5-500Hz, X, Y, Z directions)

- **Weight**

4.1 kg (9.03 lb) without package

4.8 kg (10.58 lb) with package

- **Dimensions**

192mm(7.56") (W) x 230mm(9.05") (D) x 130.8mm(5.14") (H)

1.2.4 Driver CD Content

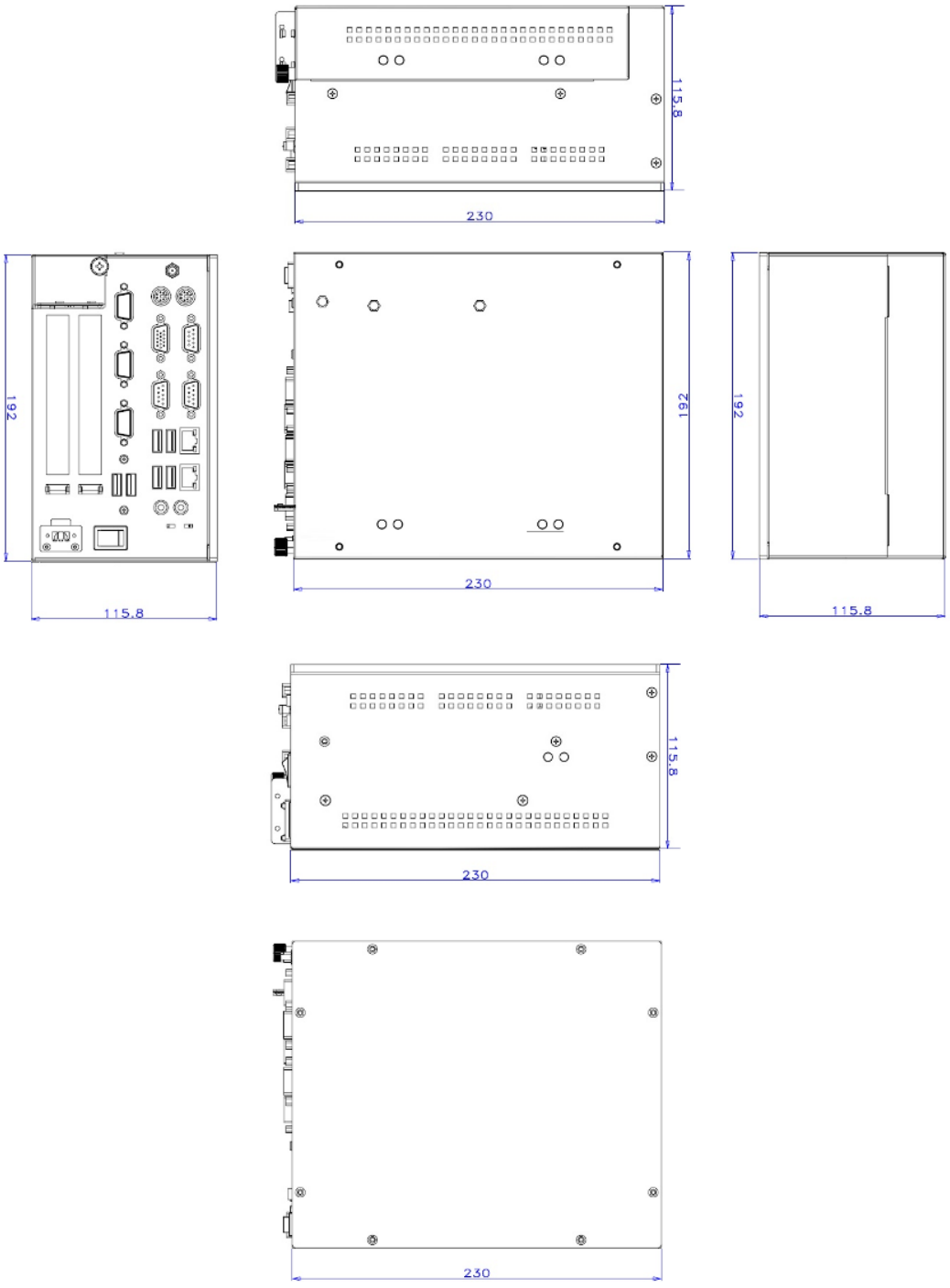
- Driver
  - Audio Driver
  - Chipset Driver
  - Ethernet Driver
  - Graphic Driver
  - AHCI Driver
- Manual
  - User Manual
  - Quick Manual

NOTE: ***All specifications and images are subject to change without notice.***

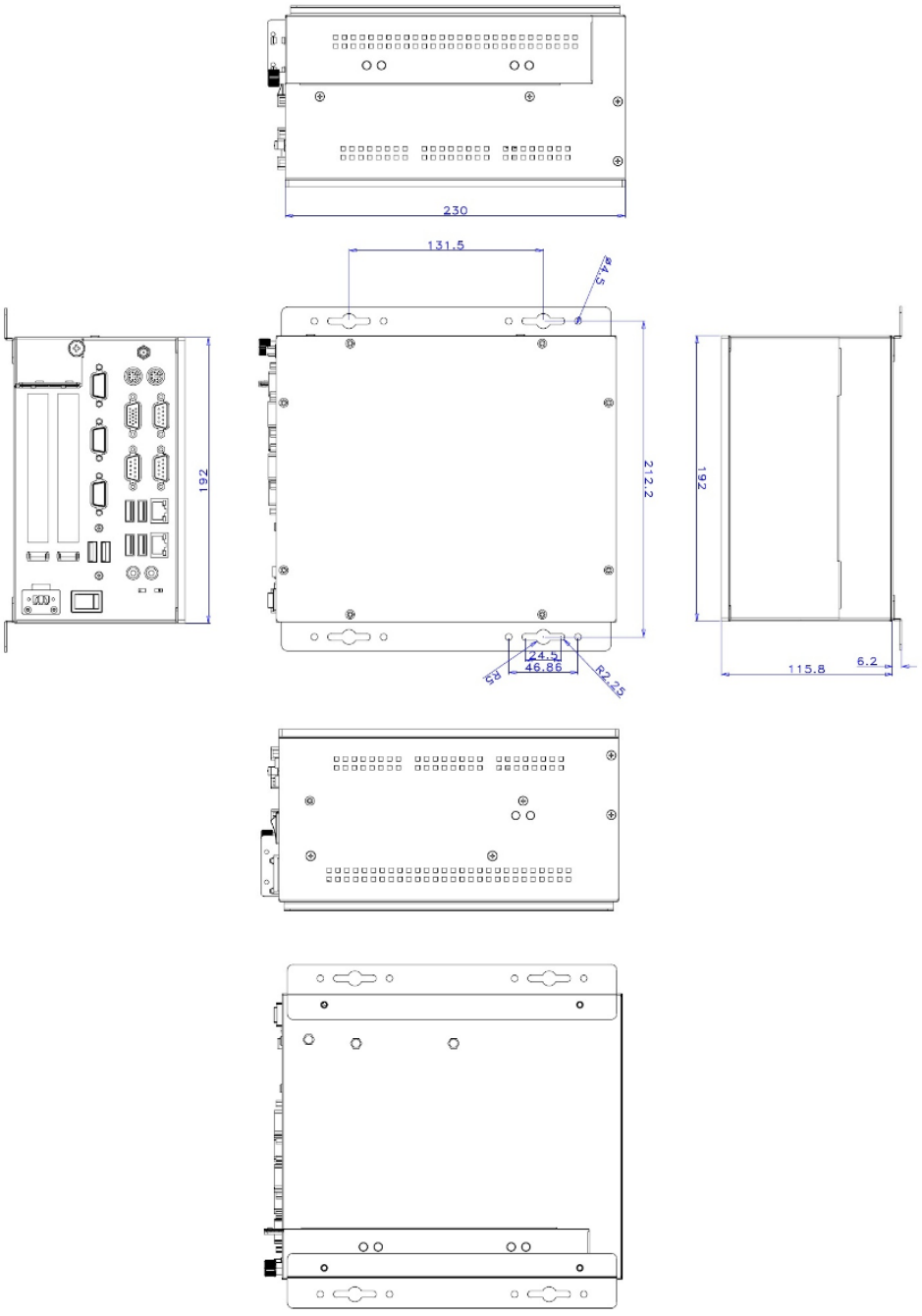
1.3 Dimensions

The following diagrams show you dimensions and outlines of the eBOX639-825-FL.

1.3.1 System Dimension



1.3.2 Wall mount Bracket Dimension

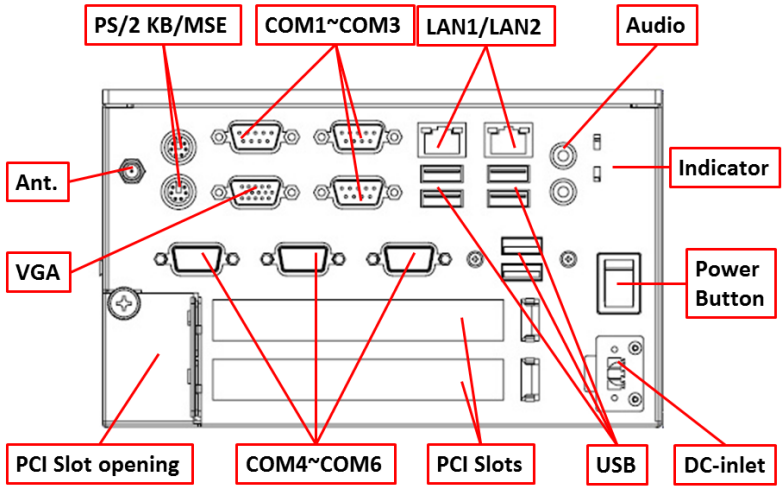


1.4 I/O Outlets

The following figures show you I/O outlets on front view of the eBOX639-825-FL.

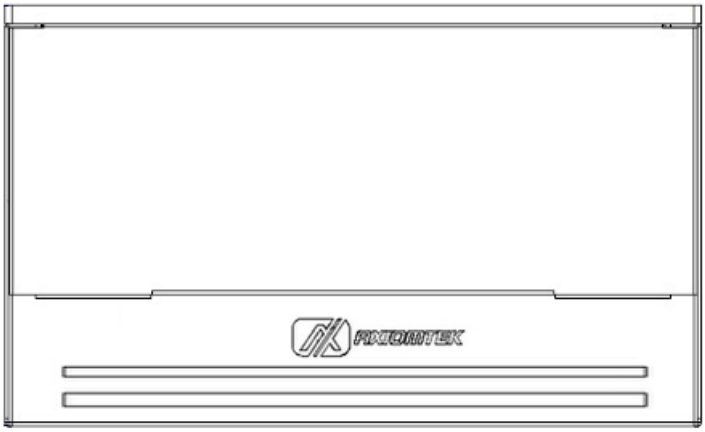
- Front View

- Front View drawing



- **Rear View**

- **Rear View drawing**



1.5 Packing List

The package bundled with your eBOX639-825-FL should contain the following items:

- eBOX639-825-FL System Unit x 1
- eBOX639-825-FL Quick Manual x 1
- CD x 1 (For Driver and User's Manual)
- Screws pack x1
- Foot pad x4
- Wall-mount Brackets (optional)
- HDD (optional)
- DRAM (optional)
- AC/DC Power Adapter (optional)
- Power Cord x 1 (optional)

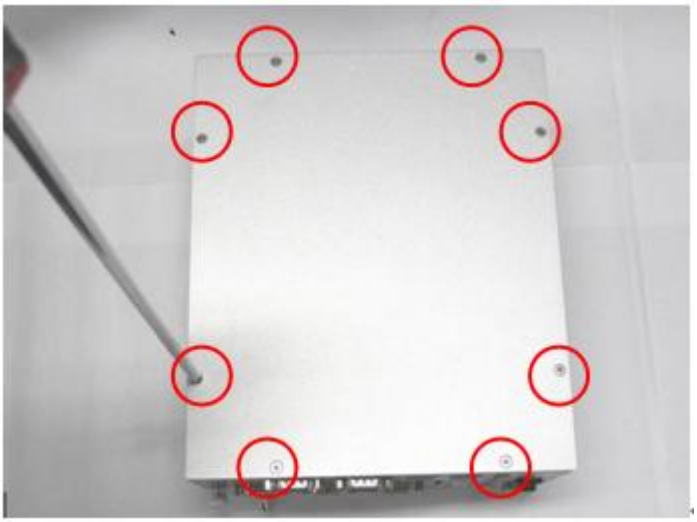
If you cannot find this package or any items are missing, please contact Axiomtek distributors immediately.

CHAPTER 2
HARDWARE INSTALLATION

The eBOX639-825-FL is convenient for your various hardware configurations, such as Memory Module, HDD (Hard Disk Drive), SSD (Solid State Drive). The chapter 2 will show you how to install the hardware.

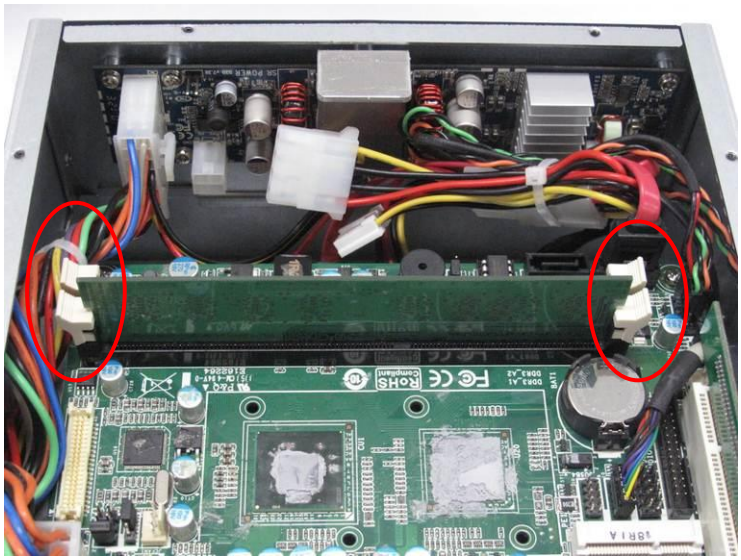
2.1 Installing the Memory Module

Step 1 Turn off the system, and unplug the power cord.
Step 2 Locate screws at the top side, loosen screws.



Step 3 Remove the top cover.

Step 4 Locate the memory module, insert the gold colored contact into the socket. Push the module down, until it is firmly seated by locking two latches on the sides.



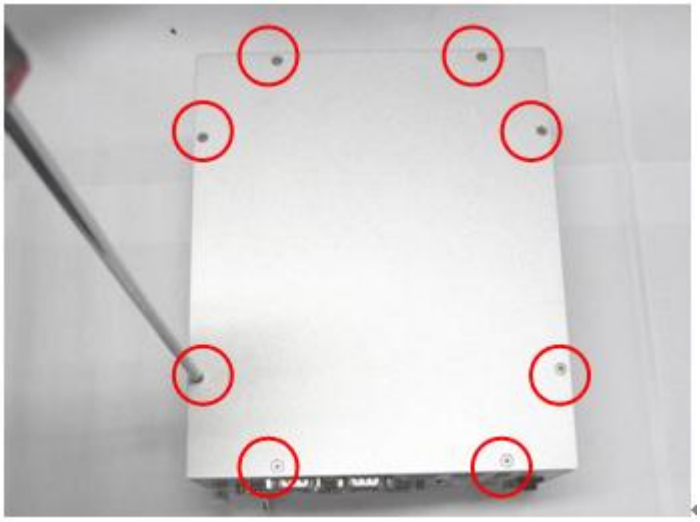
Step 5 loses the cover to the chassis, and fastens all screws.

NOTE: ***In likely conditions, user may have to replace new thermal pads or grease when existing thermal pad/grease are damaged, dirty or missed. Check the accessory kit for the need.***

2.2 Installing the Express Mini Card

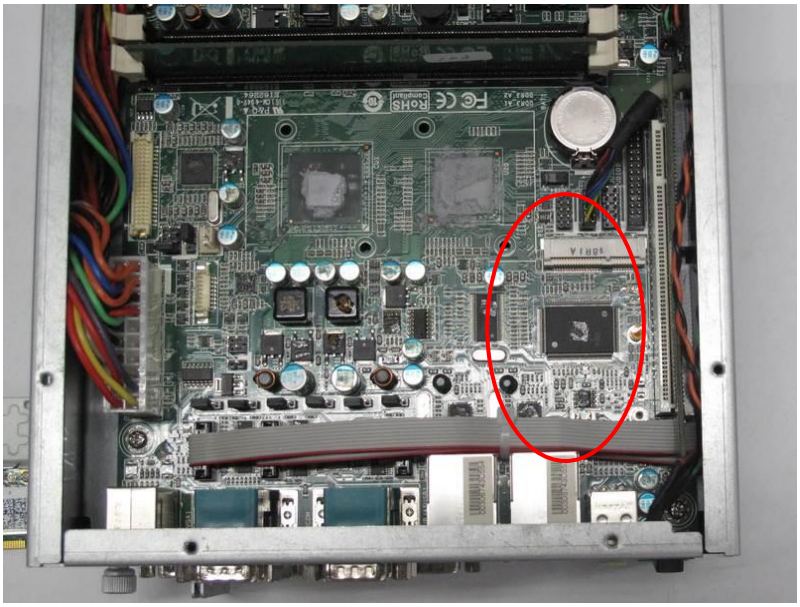
Step 1 Turn off the system, and unplug the power cord.

Step 2 Locate screws at the top side, loosen screws.

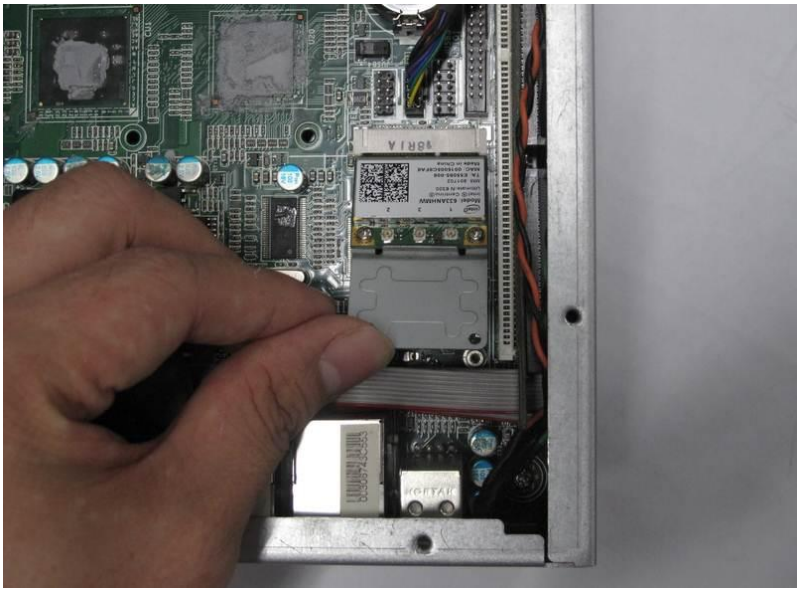


Step 3 Remove the top cover.

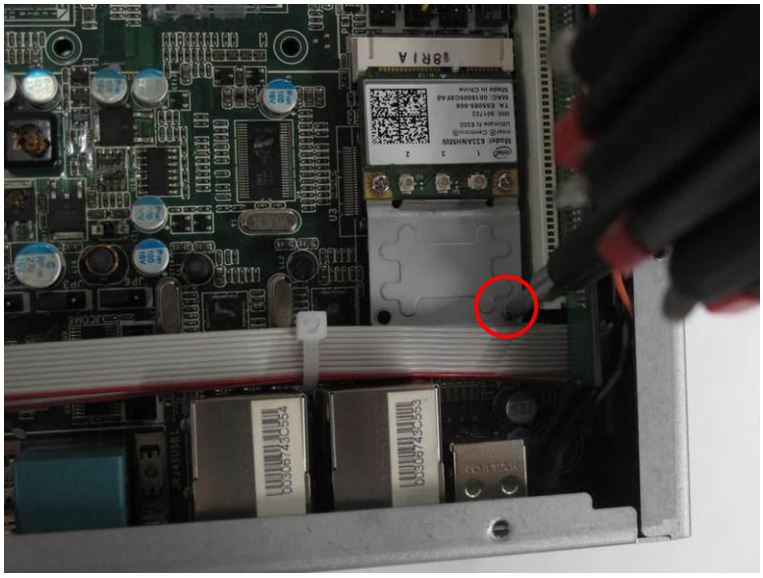
Step 4 Locate the location of Mini card slot.



Step 5 Slide Mini card into Mini Card slot with caution.



Step 6 Fasten the screws of minibar.

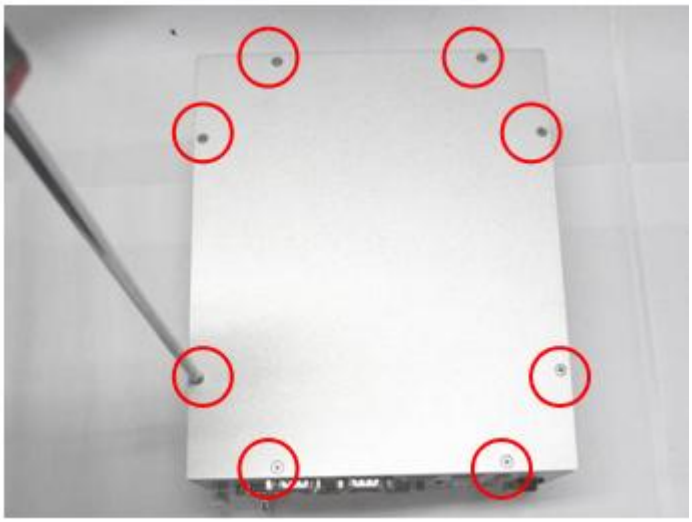


Step 7 Assembly the top cover back and fasten all screws.

NOTE: ***In likely conditions, user may have to replace new thermal pads or grease when existing thermal pad/grease are damaged, dirty or missed. Check the accessory kit for the need.***

2.3 Installing the SATA HDD

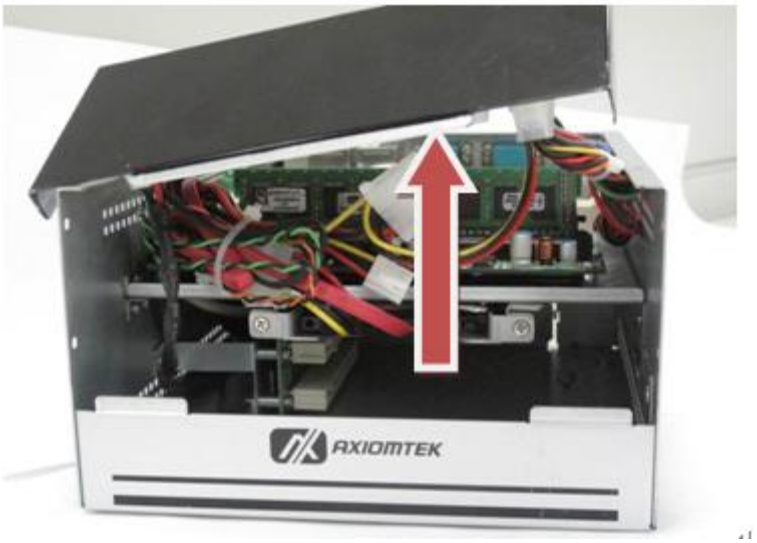
Step 1 Turn off the system, and unplug the power cord.
Step 2 Locate screws at the top side, loosen screws.



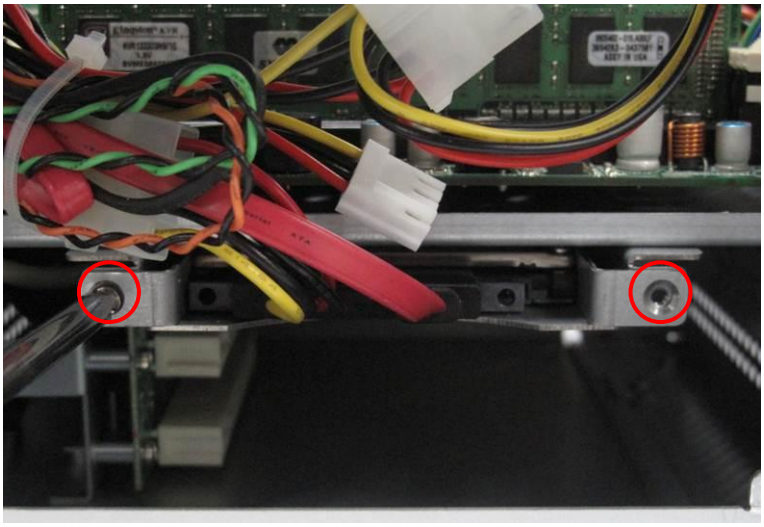
Step 3 Locate screws at the back side, loosen screws.

Step 4 Remove the top cover

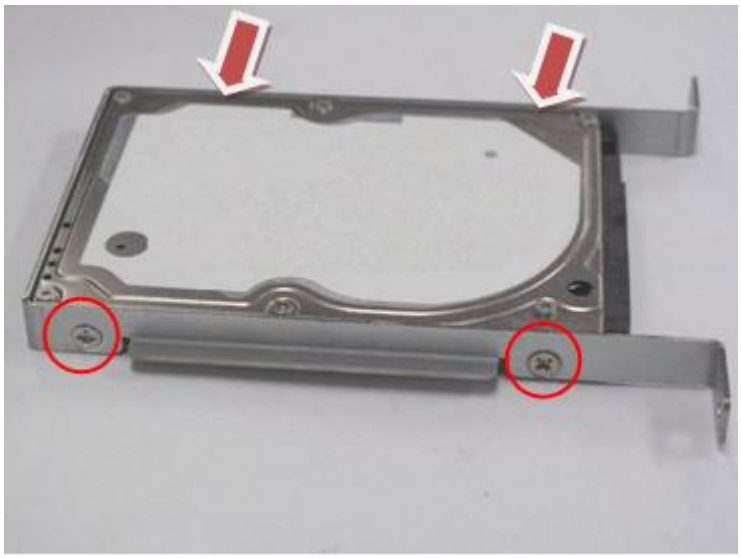
Step 5 Remove the rear cover



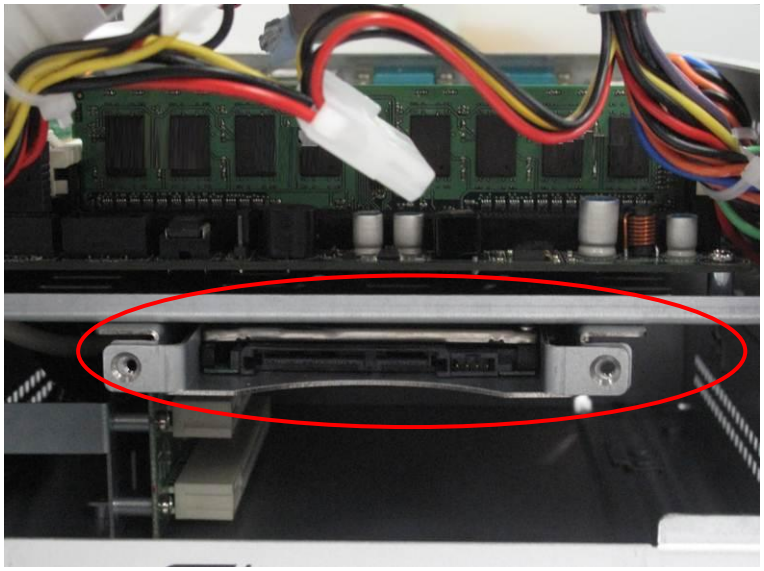
Step 6 Loosen screws and pull out the HDD bracket



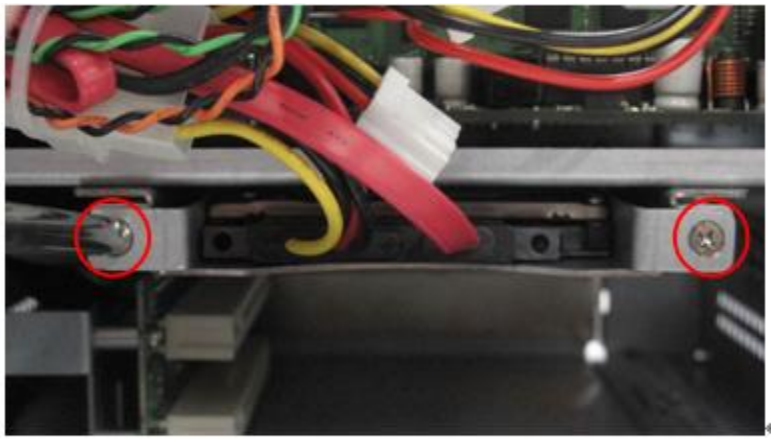
Step 7 Assembly the HDD bracket together with the SATA HDD



Step 8 Install the HDD tray into tray bracket.



Step 10 Fasten screws and connect SATA cable and power cable to SATA HDD.



Step 11 Assemble the rear cover and top cover back to the chassis, and fasten all screws.

2.4 Installing the PCI Card

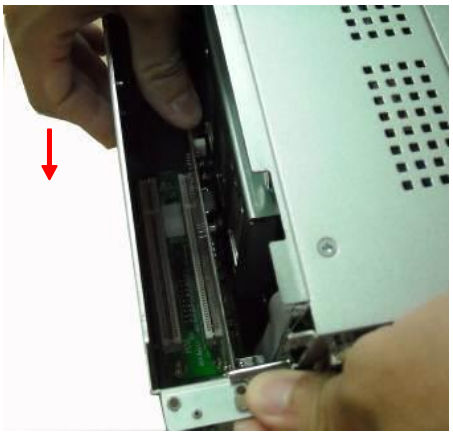
Step 1 Turn off the system.

Step 2 Unplug the power-cord.

Step 3 Turning leftward to loosen the button as marked; next, pull the lower left cover out.

Step 4 You can locate the PCI slot from the side.

Step 5 Align the PCI card with the slot, and press the card into the slot until it is firmly seated.



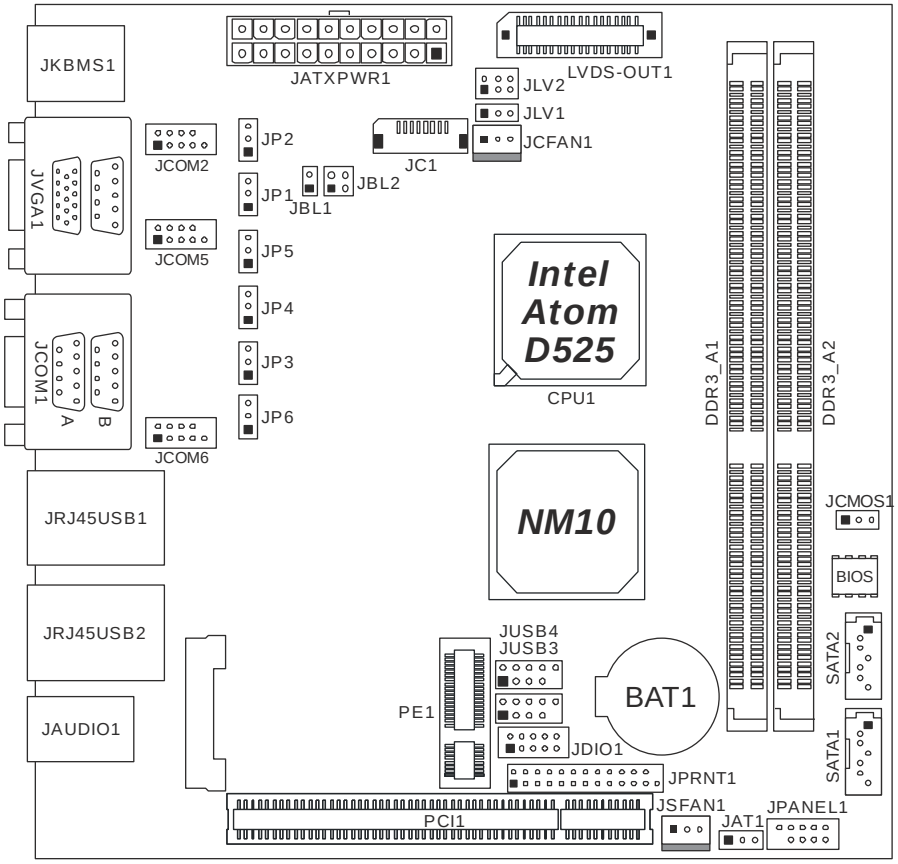
Step 6 Close the side cover to the chassis and fasten the button.

MEMO:

CHAPTER 3
JUMPER SETTING & CONNECTOR

Proper jumper settings configure the **eBOX639-825-FL** to meet your application purpose. We are herewith listing a summary table of all jumpers and default settings for onboard devices, respectively.

3.1 Jumper Location



***NOTE**: We strongly recommended that you should not modify any unmentioned jumper setting without Axiomtek FAE's instruction. Any modification without instruction might cause system to become damage.*

3.2 Jumper Setting Summary

Proper jumper settings configure the eBOX639-825-FL to meet your application purpose. We are herewith listing a summary table of all jumpers and default settings for onboard devices, respectively.

Jumper	Function / Default Setting	Jumper Setting
JCMOS1	Normal Operation/Clear CMOS setting Default: Normal Operation	Short 1-2
JAT1	Switching ATX/AT power mode	Short 2-3

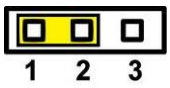
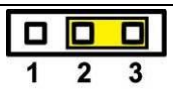
***NOTE*: How to setup Jumpers**

The illustration shows how to set up jumpers. When the jumper cap is placed on pins, the jumper is "close", if not, that means the jumper is "open".

[Open] [Closed] [Pin1-2 Closed]

3.2.1 CMOS Clear Jumper (JCMOS1)

You may need to use this jumper is to clear the CMOS memory if incorrect settings in the Setup Utility.

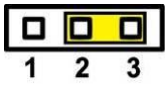
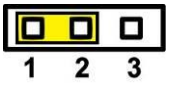
Description	Function	Jumper Setting
CMOS Clear	Normal (Default)	
	Clear CMOS	

NOTE: How to clear CMOS

1. Turn off the system and remove power cable.
2. Locate the JCMOS1.
3. Set the jumper to "Pin 2-3 close".
4. Wait for five seconds.
5. Set the jumper back to "Pin 1-2 close".
6. Re-connect the power cable, turn on the system.
7. Reset your CMOS setting.

3.2.2 AT/ATX mode Jumper (JAT1)

This header is for switching between AT and ATX power.

Description	Function	Jumper Setting
AX/ATX mode	ATX(Default)	
	AT	

3.3 Connectors

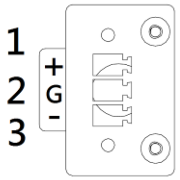
Connectors connect the board with other parts of the system. Loose or improper connection might cause problems. Make sure all connectors are properly and firmly connected. Here is a summary table shows you all connectors and button on the eBOX639-825-FL Series.

External Connectors / Buttons	Section
DC-in Phoenix Power Connector	3.3.1
DC Jack Power Connector (Optional for adapter)	3.3.2
ATX Power On/Off Button	3.3.3
PS/2 Keyboard and Mouse Connector	3.3.4
Serial Port Connector	3.3.5
VGA Connector	3.3.6
LAN Connector(LAN1,LAN2)	3.3.7
USB Connector	3.3.8
Audio Connector	3.3.9
Internal Connectors	**Section**
SATA Connector	3.3.10
SATA Power Connector	3.3.11
DDR3 DIMM	3.3.12
Express Mini Card Slot	3.3.13

3.3.1 DC-in Phoenix Power Connector

The system supports a wide range Phoenix DC-in connector for system power input.

Pin	Signal
1	DC+
2	GND
3	DC-



3.3.2 DC Jack Power Connector (optional)

Connect it to the power AC-DC 60W Adapter

Pin	Signal
1	DC+
2	GND

3.3.3 ATX Power On/OFF Button

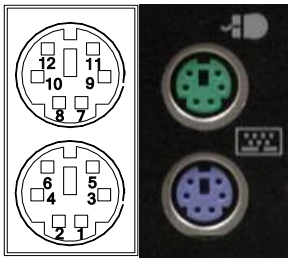
The ATX power button is on the I/O side. It can allow users to control eBOX639-825-FL power on/off.

Pin	Signal
1	GND
2	PSIN

3.3.4 PS/2 Keyboard and Mouse Connector

eBOX639-825-FL provides a keyboard and Mouse interface with a DIN connector.To install the PS/2 keyboard and mouse, plug the mouse to the upper port (green), and the keyboard to the lower port (purple)

Pin	Signal	Pin	Signal
1	K/B Data	7	M/S Data
2	NC	8	NC
3	GND	9	GND
4	VCC	10	VCC
5	K/B CLK	11	M/S CLK
6	NC	12	NC

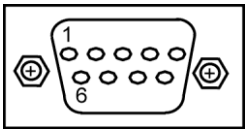


3.3.5 Serial Port Connector

The system has six RS-232 serial ports totally.

Pin	Description
1	DCD, Data Carrier Detect
2	RXD, Receive Data
3	TXD, Transmit Data
4	DTR, Data Terminal Ready
5	GND, Ground
6	DSR, Data Set Ready
7	RTS, Request To Send
8	CTS, Clear To Send
9	RI, Ring Indicator

COM1~COM6



3.3.6 VGA Connector

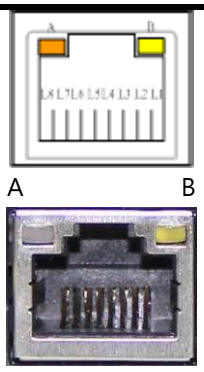
The VGA connector is a slim type 15-pin D-Sub connector which is common for the CRT VGA display. The VGA interface configuration can be configured via the software utility.

Pin	Signal	Pin	Signal	Pin	Signal
1	Red	2	Green	3	Blue
4	N.C.	5	GND	6	DETECT
7	GND	8	GND	9	VCC
10	GND	11	N.C.	12	DDC DATA
13	Horizontal Sync	14	Vertical Sync	15	DDC CLK

3.3.7 LAN Connector (LAN1, LAN2)

The RJ-45 connector is for Ethernet. To connect the board to a 1000/100/10 Base-T hub, just plug one end of the cable into connector and connect the other end (phone jack) to a 1000/100/10-Base-T hub

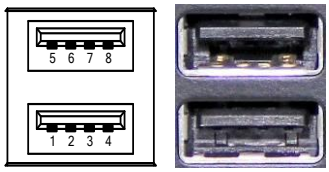
Pin	Signal	Pin	Signal
L1	MDI0+	L5	MDI2-
L2	MDI0-	L6	MDI1-
L3	MDI1+	L7	MDI3+
L4	MDI2+	L8	MDI3-
A	100 LAN LED (Green)/ 1000 LAN LED (Orange)		
B	Active LED (Yellow)		



3.3.8 USB Connector

These ports can be routed to UHCI controller #1 or EHCI controller #1.

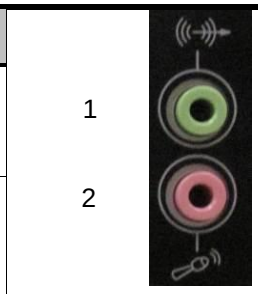
Pin	Signal USB Port 0	Pin	Signal USB Port 1
1	USB VCC (+5V level)	5	USB VCC (+5V level)
2	USB #0_D-	6	USB #1_D-
3	USB #0_D+	7	USB #1_D+
4	Ground (GND)	8	Ground (GND)



3.3.9 Audio Connector

These two audio jacks ideal are for Audio Mic-In and Audio Line-out.

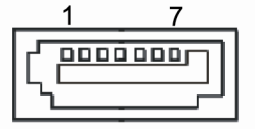
Pin	Signal
1	Line Out
2	Microphone In



3.3.10 SATA Connector

The SATA connector is for high-speed SATA interface ports and they can be connected to hard disk devices.

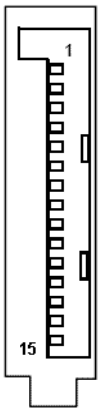
Pin	Signal
1	GND
2	SATA_TX+
3	SATA_TX-
4	GND
5	SATA_RX-
6	SATA_RX+
7	GND



3.3.11 SATA Power Connector

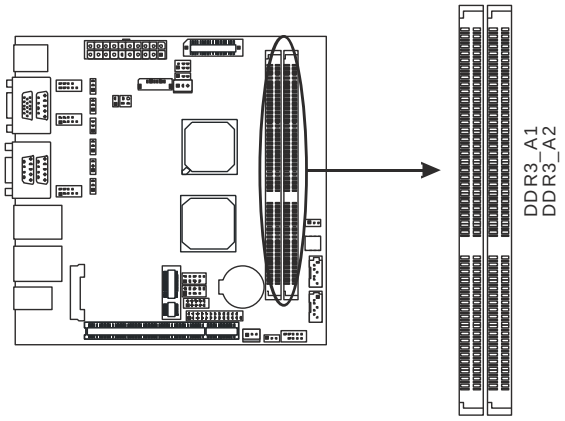
The SATA power connector is for SATA interface ports and it can provide power to hard disk devices.

Pin	Signal
1	+3.3VDC
2	+3.3VDC
3	+3.3VDC
4	COM
5	COM
6	COM
7	+5VDC
8	+5VDC
9	+5VDC
10	COM
11	COM
12	COM
13	+12VDC
14	+12VDC
15	+12VDC



3.3.12 DDR-3 SODIMM Socket

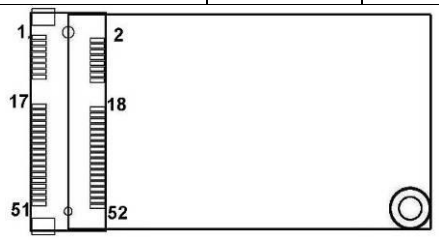
eBOX639-825-FL supports dual DDR3 DIMM back for standard DDR3 240-pin 667/800 MHz DIMM.



3.3.13 Express Mini Card Slot

PCI Express Mini Card connector supports a PCI Express x1 link and a USB 2.0 link. A PCI Express Mini Card can be applied to either PCI Express or USB 2.0. The USB 2.0 support will be helpful during the transition to PCI Express, because peripheral vendors will need time to design their chipsets to have the PCI Express function. During the transition, PCI Express Mini Cards can be quickly implemented by using USB 2.0

Pin	Signal	Pin	Signal
1	WAKE#	2	+3.3VSB
3	No use	4	GND
5	No use	6	+1.5V
7	CLKREQ#	8	No use
9	GND	10	No use
11	REFCLK-	12	No use
13	REFCLK+	14	No use
15	GND	16	No use
17	No use	18	GND
19	No use	20	No use
21	GND	22	PERST#
23	PE_RXN3	24	+3.3VSB
25	PE_RXP3	26	GND
27	GND	28	+1.5V
29	GND	30	SMB_CLK
31	PE_TXN3	32	SMB_DATA
33	PE_TXP3	34	GND
35	GND	36	USB_D8-
37	GND	38	USB_D8+
39	+3.3VSB	40	GND
41	+3.3VSB	42	No use
43	GND	44	No use
45	No use	46	No use
47	No use	48	+1.5V
49	No use	50	GND
51	No use	52	+3.3VSB



MEMO:

CHAPTER 4
BIOS SETUP UTILITY

This chapter provides users with detailed description how to set up basic system configuration through the BIOS setup utility.

4.1 Starting

To enter the setup screens, follow the steps below:

1. Turn on the computer and press the <Del> key immediately.
2. After you press the <Delete> key, the main BIOS setup menu displays. You can access the other setup screens from the main BIOS setup menu, such as the Chipset and Power menus.

4.2 Navigation Keys

The BIOS setup/utility uses a key-based navigation system called hot keys. Most of the BIOS setup utility hot keys can be used at any time during the setup navigation process.

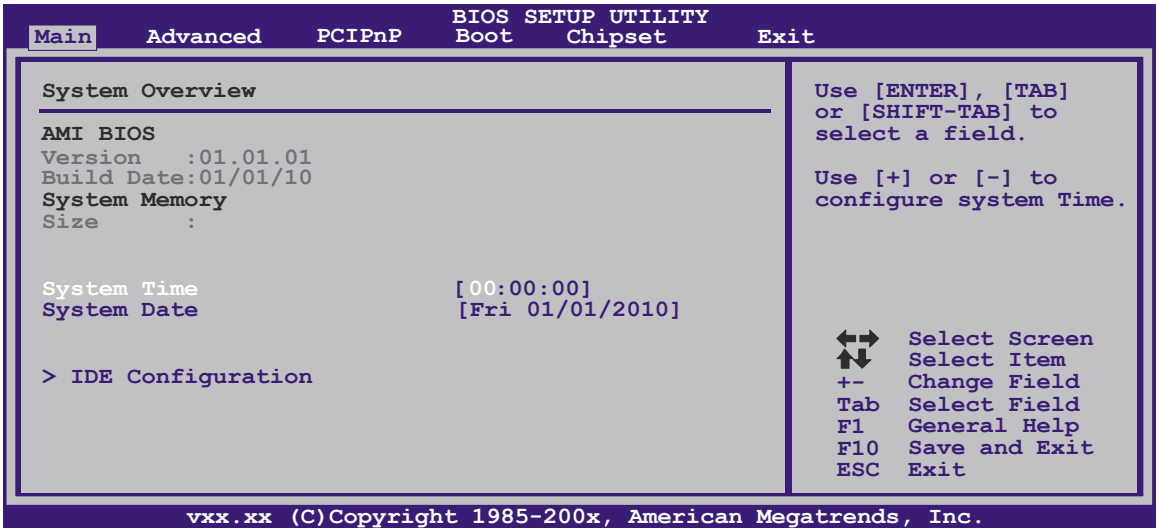
These keys include <F1>, <F10>, <Enter>, <ESC>, <Arrow> keys, and so on.

Note: ***Some of navigation keys differ from one screen to another.***

← Left/Right	The Left and Right <Arrow> keys allow you to select a setup screen.
↑↓ Up/Down	The Up and Down <Arrow> keys allow you to select a setup screen or sub-screen.
+– Plus/Minus	The Plus and Minus <Arrow> keys allow you to change the field value of a particular setup item.
Tab	The <Tab> key allows you to select setup fields.
F1	The <F1> key allows you to display the General Help screen.
F10	The <F10> key allows you to save any changes you have made and exit Setup. Press the <F10> key to save your changes.
Esc	The <Esc> key allows you to discard any changes you have made and exit the Setup. Press the <Esc> key to exit the setup without saving your changes.
Enter	The <Enter> key allows you to display or change the setup option listed for a particular setup item. The <Enter> key can also allow you to display the setup sub- screens.

4.3 Main Menu

When you first enter the Setup Utility, you will enter the Main setup screen. You can always return to the Main setup screen by selecting the Main tab. There are two Main Setup options. They are described in this section. The Main BIOS Setup screen is shown below.



- **AMI BIOS**

Shows system information including BIOS version, built date, etc.

- **System Memory**

Shows system memory size, VGA shard memory will be excluded.

- **System Time**

Set the system internal clock.

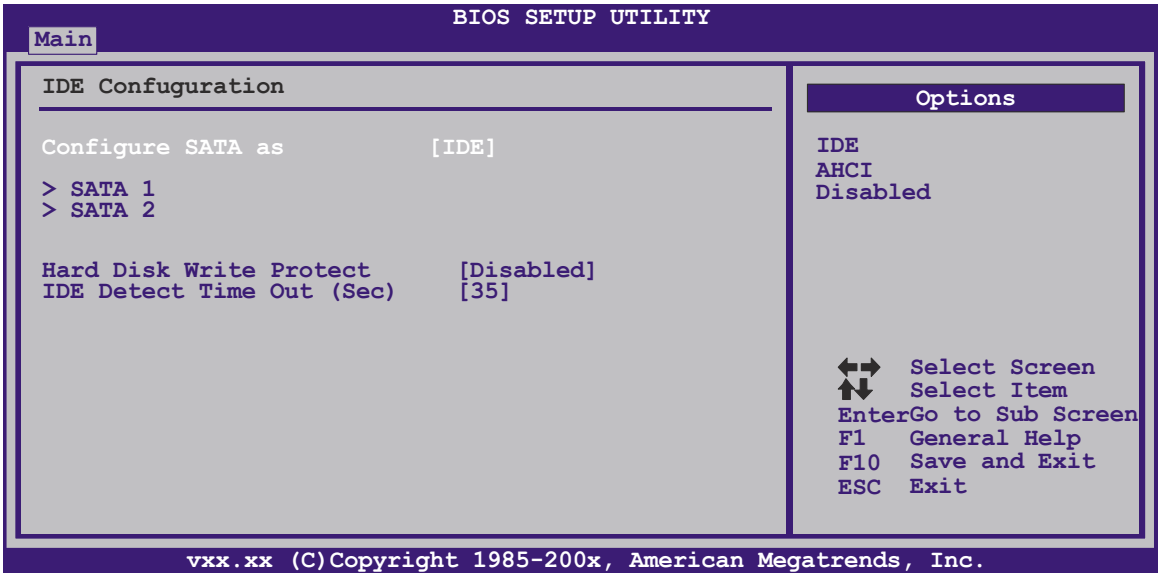
- **System Date**

Set the system date. Note that the 'Day' automatically changes when you set the date.

- **IDE Configuration**

The BIOS will automatically detect the presence of IDE/SATA devices. There is a sub-menu for each IDE/SATA device. Select a device and press <Enter> to enter the sub-menu of detailed options.

4.3.1 IDE Configuration

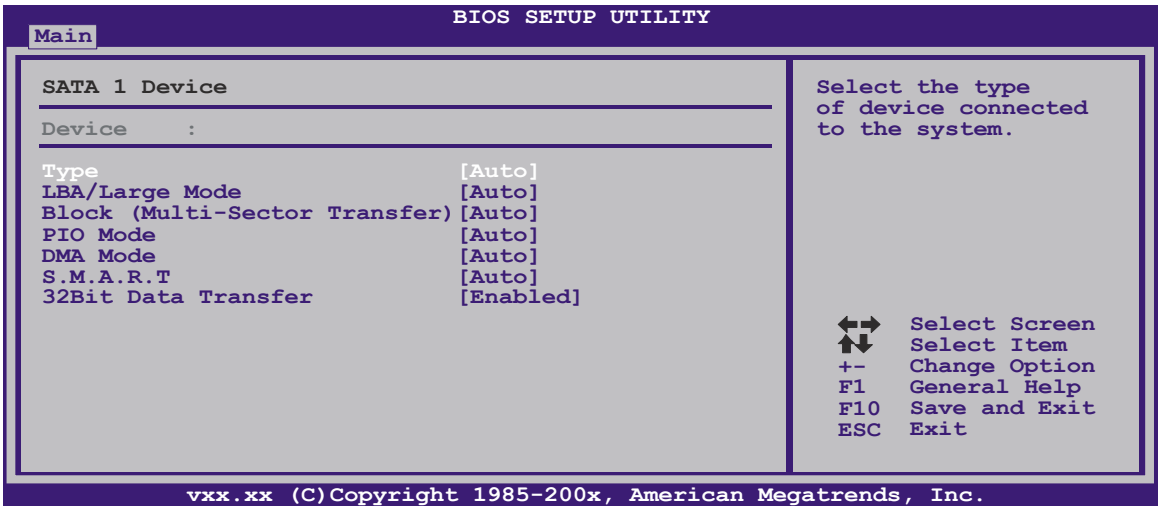


- **Configure SATA as [IDE]**

This item allows you to determine the control mode of SATA.

Options: IDE (Default) / AHCI / Disabled

- **SATA 1/2 Devices**



The BIOS detects the information and values of respective devices, and these information and values are shown below to the name of the sub-menu.

Type [Auto]

Select the type of the SATA drive.

Options: Auto (Default) / CD/DVD / ARMD / Not Installed

LBA/Large Mode [Auto]

Enable or disable the LBA mode.

Options: Auto (Default) / Disabled

Block (Multi-Sector Transfer) [Auto]

Enable or disable multi-sector transfer.

Options: Auto (Default) / Disabled

PIO Mode [Auto]

Select the PIO mode.

Options: Auto (Default) / 0 / 1 / 2 / 3 / 4

DMA Mode [Auto]

Select the DMA mode.

Options: Auto (Default) / SWDMA0 ~ SWDMA2 / MWDMA0 ~ MWDMA2 / UDMA0 ~ UDMA5

S.M.A.R.T [Auto]

Set the Smart Monitoring, Analysis, and Reporting Technology.

Options: Auto (Default) / Disabled / Enabled

32Bit Data Transfer [Enabled]

Enable or disable 32-bit data transfer.

Options: Enabled (Default) / Disabled

- **Hard Disk Write Protect [Disabled]**

Disable or enable device write protection. This will be effective only if the device is accessed through BIOS.

Options: Disabled (Default) / Enabled

- **IDE Detect Time Out (Sec) [35]**

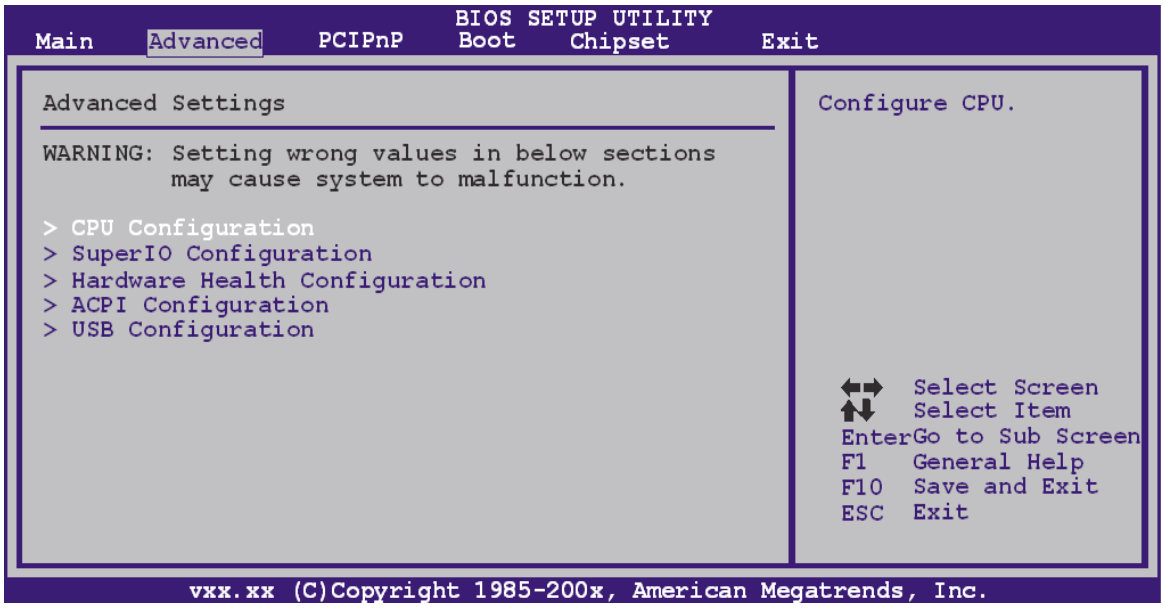
Select the time out value for detecting IDE/SATA devices.

Options: 35 (Default) / 30 / 25 / 20 / 15 / 10 / 5 / 0

4.4 Advanced Menu

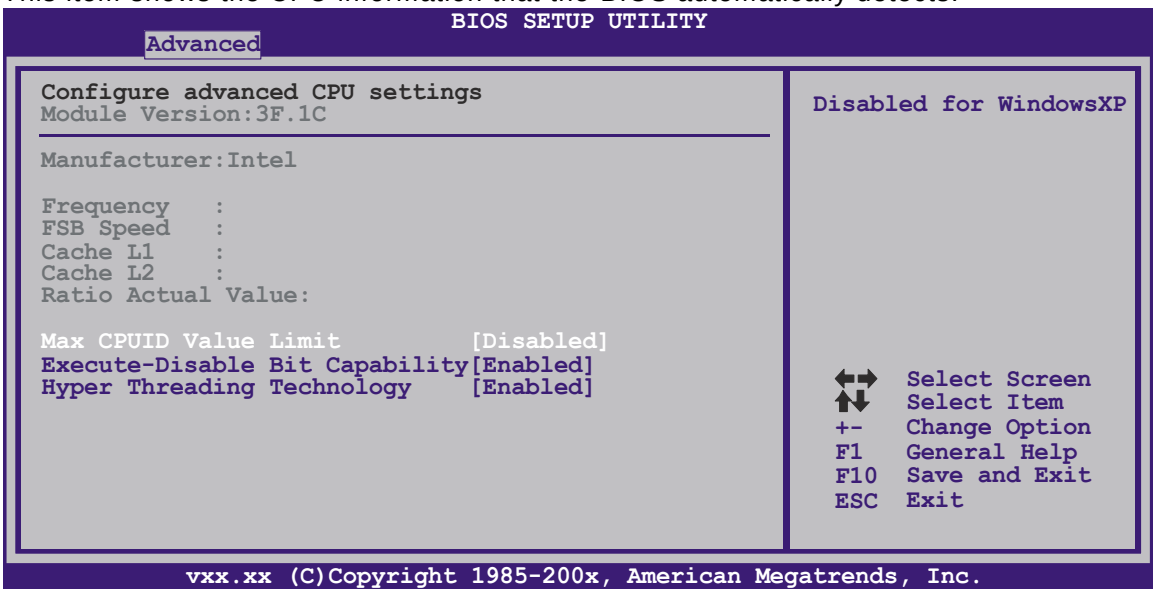
The Advanced Menu allows you to configure the settings of CPU, Super I/O, Power Management, and other system devices.

NOTE: Beware of that setting inappropriate values in items of this menu may cause system to malfunction.



4.4.1 CPU Configuration

This item shows the CPU information that the BIOS automatically detects.



- **Max CPUID Value Limit [Disable]**

When the computer is booted up, the operating system executes the CPUID instruction to identify the processor and its capabilities. Before it can do so, it must first query the processor to find out the highest input value CPUID recognizes. This determines the kind of basic information CPUID can provide the operating system.

Options: Disabled (Default) / Enabled

- **Execute-Disable Bit Capability [Enabled]**

This item allows you to configure the Execute Disabled Bit function, which protects your system from buffer overflow attacks.

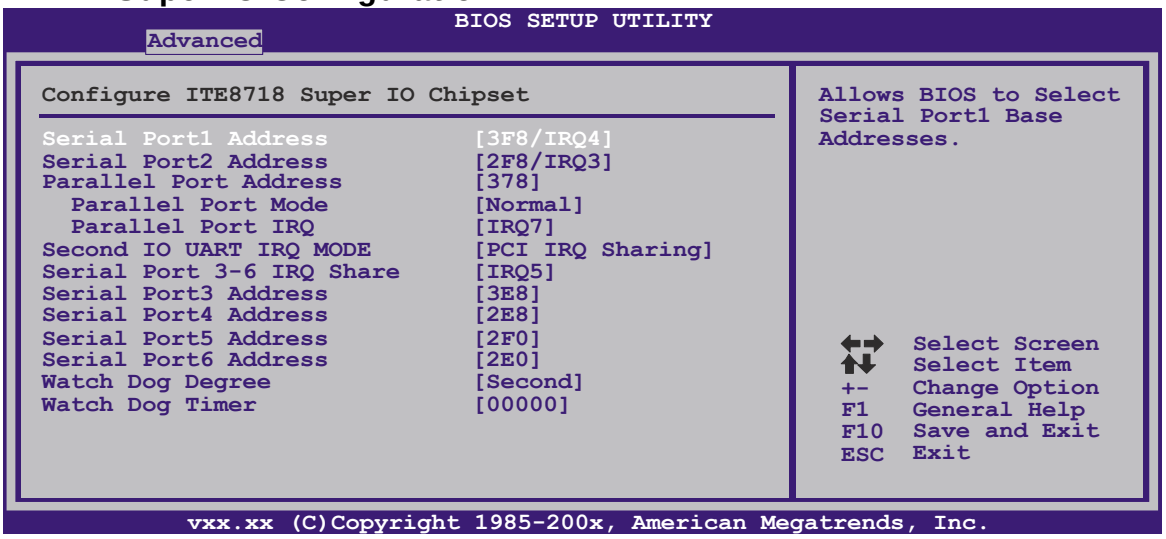
Options: Enabled (Default) / Disabled

- **Hyper Threading Technology [Enabled]**

Enabled for Windows XP and Linux (OS optimized for Hyper Threading Technology) and disabled for other OS (OS not optimized for Hyper Threading Technology).

Options: Enabled (Default) / Disabled

4.4.2 Super IO Configuration


BIOS SETUP UTILITY
Advanced
Configure ITE8718 Super IO Chipset
Serial Port1 Address [3F8/IRQ4]
Serial Port2 Address [2F8/IRQ3]
Parallel Port Address [378]
Parallel Port Mode [Normal]
Parallel Port IRQ [IRQ7]
Second IO UART IRQ MODE [PCI IRQ Sharing]
Serial Port 3-6 IRQ Share [IRQ5]
Serial Port3 Address [3E8]
Serial Port4 Address [2E8]
Serial Port5 Address [2F0]
Serial Port6 Address [2E0]
Watch Dog Degree [Second]
Watch Dog Timer [00000]
Allows BIOS to Select Serial Port1 Base Addresses.
Select Screen
Select Item
+- Change Option
F1 General Help
F10 Save and Exit
ESC Exit
vxx.xx (C)Copyright 1985-200x, American Megatrends, Inc.

- **Serial Port1 Address [3F8/IRQ4]**

Select an address and corresponding interrupt for Serial Port 1.

Options: 3F8/IRQ4 (Default) / 3E8/IRQ4 / 2E8/IRQ3 / Disabled

- **Serial Port2 Address [2F8/IRQ3]**

Select an address and corresponding interrupt for Serial Port 2.

Options: 2F8/IRQ3 (Default) / 3E8/IRQ4 / 2E8/IRQ3 / Disabled

- **Second IO UART IRQ Mode [PCI IRQ Sharing]**

PCI IRQ Sharing for OS (EX. WinXP); ISA IRQ Sharing for Dos.

Options: PCI IRQ Sharing (Default) / ISA IRQ

- **Serial Port 3-6 IRQ Share [IRQ5]**

This item allows you to determine whether Serial Port 3-6 share IRQ.

Options: IRQ5 (Default) / Disabled / IRQ3 / IRQ4 / IRQ7 / IRQ9 / IRQ10 / IRQ11 / IRQ12

- **Serial Port3 Address [3E8]**

This item allows you to select the address of Serial Port3.

Options: 3E8 (Default) / 2E8 / 2F0 / 2E0

- **Serial Port3 IRQ [IRQ5]**

This item allows you to select IRQ of Serial Port3.

Options: IRQ5 (Default) / IRQ3 / IRQ4 / IRQ7 / IRQ9 / IRQ10 / IRQ11 / IRQ12

- **Serial Port4 Address [2E8]**

This item allows you to select the address of Serial Port4.

Options: 2E8 (Default) / 3E8 / 2F0 / 2E0

- **Serial Port4 IRQ [IRQ5]**

This item allows you to select IRQ of Serial Port4.

Options: IRQ5 (Default) / IRQ3 / IRQ4 / IRQ7 / IRQ9 / IRQ10 / IRQ11 / IRQ12

- **Serial Port5 Address [2F0]**

This item allows you to select the address of Serial Port5.

Options: 2F0 (Default) / 3E8 / 2E8 / 2E0

- **Serial Port5 IRQ [IRQ5]**

This item allows you to select IRQ of Serial Port5.

Options: IRQ5 (Default) / IRQ3 / IRQ4 / IRQ7 / IRQ9 / IRQ10 / IRQ11 / IRQ12

- **Serial Port6 Address []**

This item allows you to select the address of Serial Port6.

Options: 2E0 (Default) / 3E8 / 2E8 / 2F0

- **Serial Port6 IRQ []**

This item allows you to select IRQ of Serial Port6.

Options: IRQ5 (Default) / IRQ3 / IRQ4 / IRQ7 / IRQ9 / IRQ10 / IRQ11 / IRQ12

- **Watch Dog Degree [Second]**

This item allows you to determine the functional degree of Watch Dog.

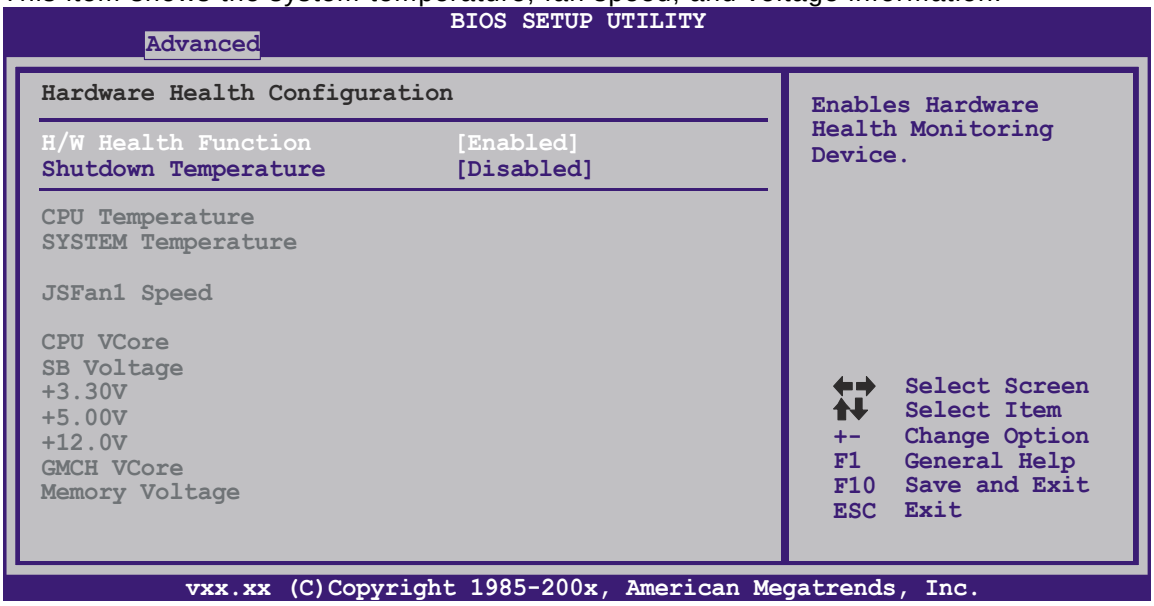
Options: Second (Default) / Minute

- **Watch Dog Timer [00000]**

Options: 0 for disabled (Default) / Min=1, Max=65536

4.4.3 Hardware Health Configuration

This item shows the system temperature, fan speed, and voltage information.



- **H/W Health Function [Enabled]**

If with a monitoring system, PC will show PC health status during POST stage.

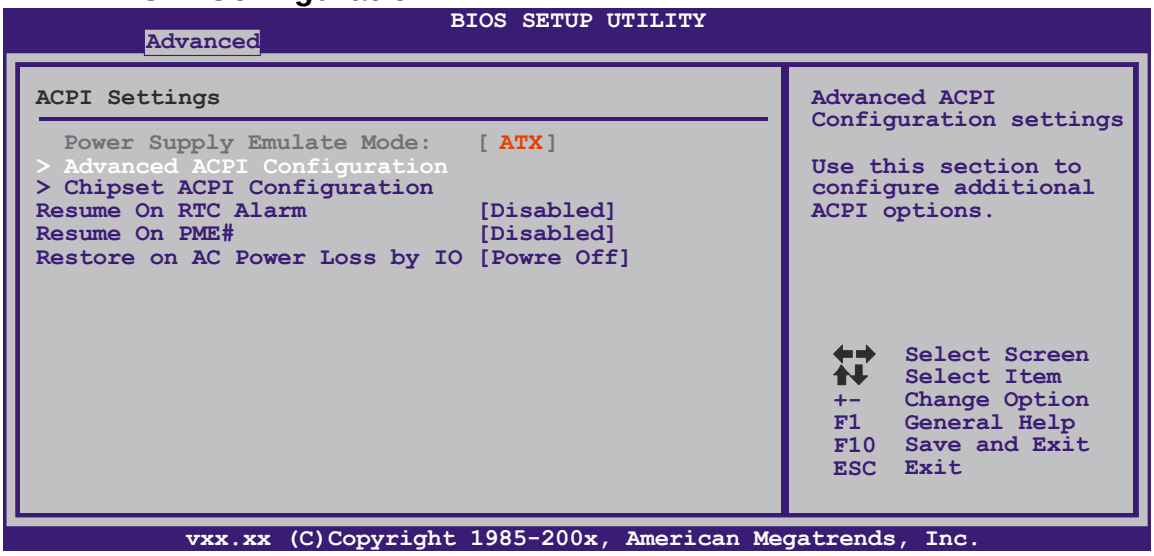
Options: Enabled (Default) / Disabled

- **Shutdown Temperature Function [Disabled]**

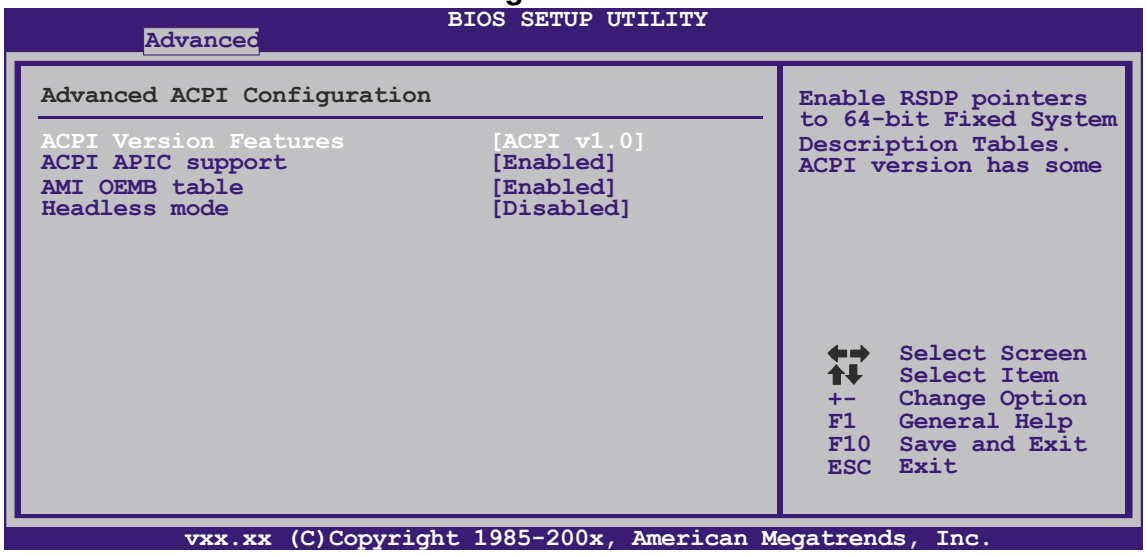
This item allows you to set up the CPU shutdown Temperature. This item is only effective under Windows 98 ACPI mode.

Options: Disabled (Default) / 60℃/140℉ / 65℃/149℉ / 70℃/158℉ / 75℃/167℉ / 80℃/176℉ / 85℃/185℉ / 90℃/194℉

4.4.4 ACPI Configuration


BIOS SETUP UTILITY
Advanced
ACPI Settings
Power Supply Emulate Mode: [ATX]
> Advanced ACPI Configuration
> Chipset ACPI Configuration
Resume On RTC Alarm [Disabled]
Resume On PME# [Disabled]
Restore on AC Power Loss by IO [Powre Off]
Advanced ACPI Configuration settings
Use this section to configure additional ACPI options.
Select Screen
Select Item
+- Change Option
F1 General Help
F10 Save and Exit
ESC Exit
vxx.xx (C)Copyright 1985-200x, American Megatrends, Inc.

4.8.2.1 Advanced ACPI Configuration



- **ACPI Version Features [ACPI v1.0]**

The item allows you to select the version of ACPI.

Options: ACPI v1.0 (Default) / ACPI v2.0 / ACPI v3.0

- **ACPI APIC support [Enabled]**

This item is used to enable or disable the motherboard's APIC (Advanced Programmable Interrupt Controller). The APIC provides multiprocessor support, more IRQs and faster interrupt handling.

Options: Enabled (Default) / Disabled

- **AMI OEMB table [Enabled]**

Set this value to allow the ACPI BIOS to add a pointer to an OEMB table in the Root System Description Table (RSDT) table.

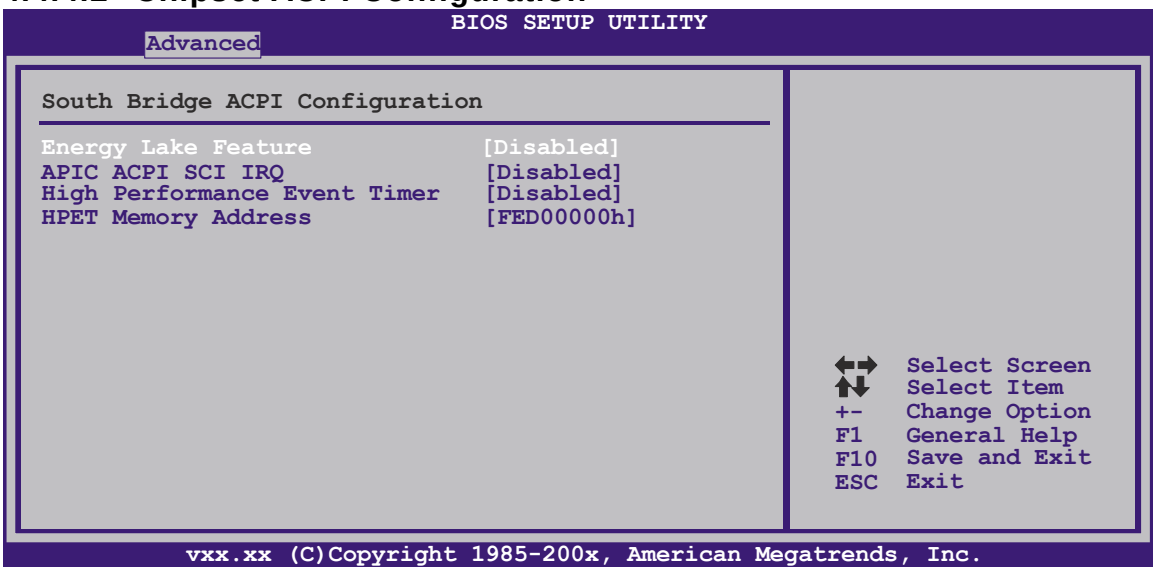
Options: Enabled (Default) / Disabled

- **Headless mode [Disabled]**

This is a server-specific feature. A headless server is one that operates without a keyboard, monitor or mouse. To run in headless mode, both BIOS and operating system (e.g. Windows Server 2003) must support headless operation.

Options: Disabled (Default) / Enabled

4.4.4.2 Chipset ACPI Configuration



- **Energy Lake Feature [Disabled]**

This item allows you to enable or disable the Energy Lake technology feature.

Options: Disabled (Default) / Enabled

- **APIC ACPI SCI IRQ support [Disabled]**

This item is used to set APIC ACPI SCI by IRQ.

Options: Disabled (Default) / Enabled

- **High Performance Event Timer [Enabled]**

This item allows you to enable or disabled the HPET.

Options: Enabled (Default) / Disabled

- **HPET Memory Address [FED00000h]**

Options: FED00000h (Default) / FED01000h / FED02000h / FED03000h

4.4.4.3 Resume On RTC Alarm

When "Enabled", you can set the date and time at which the RTC (real-time clock) alarm awakens the system from Suspend mode.

Options: Disabled (Default) / Enabled

- **RTC Alarm Date (Days)**

You can choose which date the system will boot up.

- **Resume On RTC Alarm**

You can choose the system boot up time, input hour, minute and second to specify.

- **Resume On PME# [Disabled]**

This item allows you to disable or enable PME to generate a wake event.

Options: Disabled (Default) / Enabled

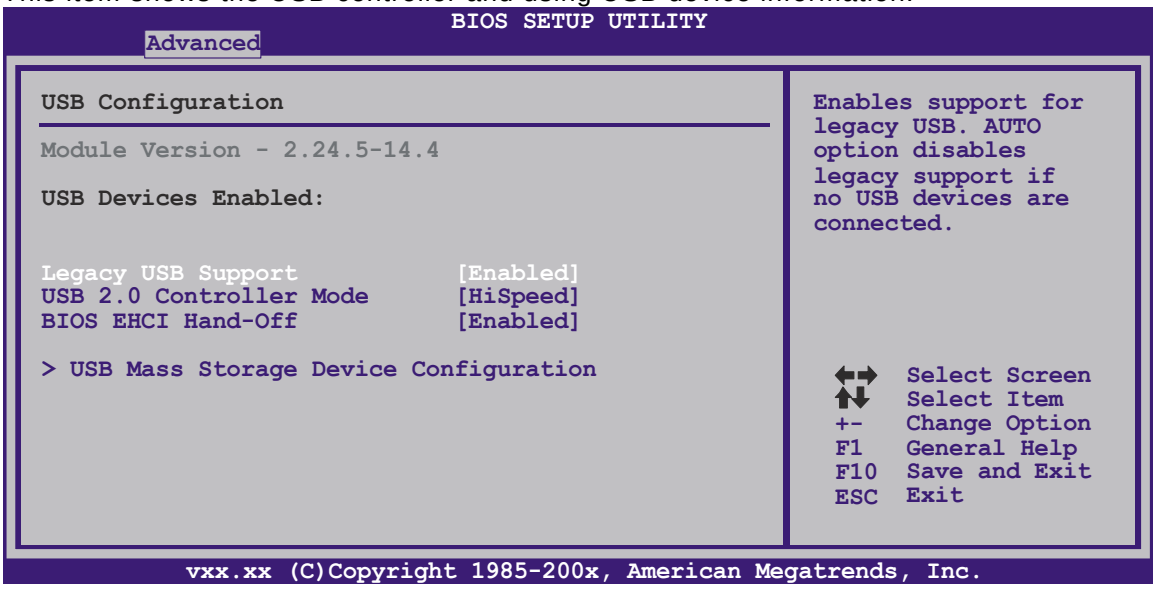
- **Restore on AC Power Loss by IO [Power Off]**

This setting specifies how your system should behave after a power fail or interrupts occurs. By choosing Disabled will leave the computer in the power off state. Choosing Enabled will restore the system to the status before power failure or interrupt occurs.

Options: Power Off (Default) / Power ON / Last State

4.4.5 USB Configuration

This item shows the USB controller and using USB device information.


BIOS SETUP UTILITY
Advanced
USB Configuration
Module Version - 2.24.5-14.4
USB Devices Enabled:
Legacy USB Support [Enabled]
USB 2.0 Controller Mode [HiSpeed]
BIOS EHCI Hand-Off [Enabled]
> USB Mass Storage Device Configuration
Enables support for legacy USB. AUTO option disables legacy support if no USB devices are connected.
Select Screen
Select Item
+- Change Option
F1 General Help
F10 Save and Exit
ESC Exit
vxx.xx (C)Copyright 1985-200x, American Megatrends, Inc.

- **Legacy USB Support [Enabled]**

This item determines if the BIOS should provide legacy support for USB devices like the keyboard, mouse, and USB drive. This feature is useful for using USB devices with operating systems that do not natively support USB (e.g. Microsoft MS-DOS or Windows NT).

Options: Enabled (Default) / Disabled / Auto

- **USB 2.0 Controller Mode [HI Speed]**

This item allows you to select the operation mode of the USB 2.0 controller.

Options: HI Speed (Default) / Full Speed

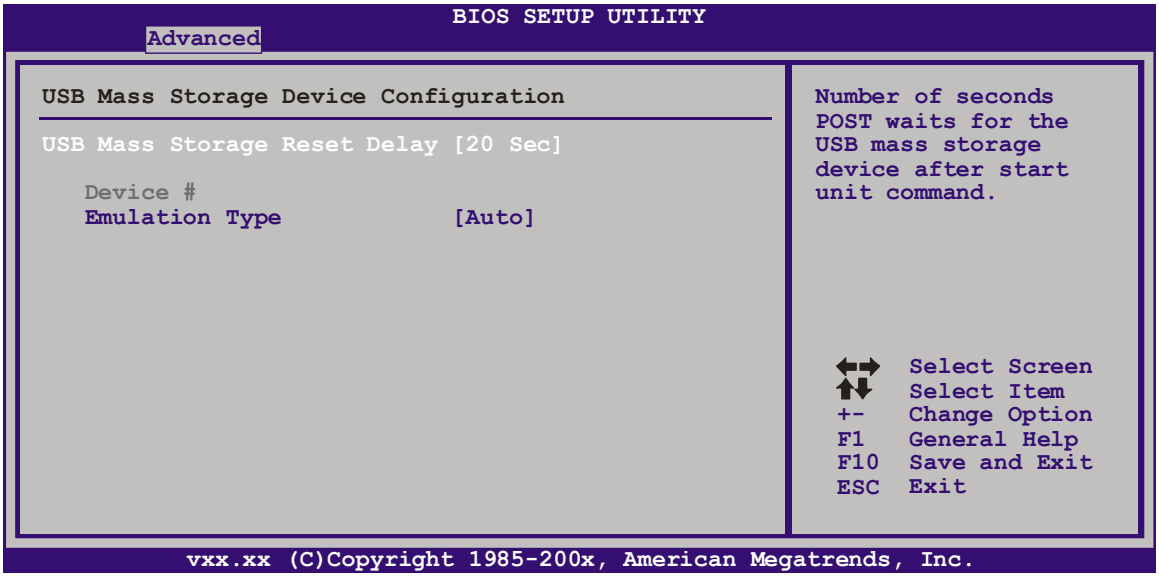
- **BIOS EHCI Hand-Off [Enabled]**

This item allows you to enable support for operating systems without an EHCI hand-off feature.

Options: Enabled (Default) / Disabled

- **USB Mass Storage Device Configuration**

4.4.5.1 USB Mass Storage Device Configuration


BIOS SETUP UTILITY
Advanced
USB Mass Storage Device Configuration
USB Mass Storage Reset Delay [20 Sec]
Device #
Emulation Type [Auto]
Number of seconds POST waits for the USB mass storage device after start unit command.
Select Screen
Select Item
+- Change Option
F1 General Help
F10 Save and Exit
ESC Exit
vxx.xx (C)Copyright 1985-200x, American Megatrends, Inc.

- **USB Mass Storage Reset Delay [20 Sec]**

This item allows you to set the reset delay for USB mass storage device.

Options: 20 Sec (Default) / 10 Sec / 30 Sec / 40 Sec

- **Emulation Type [Auto]**

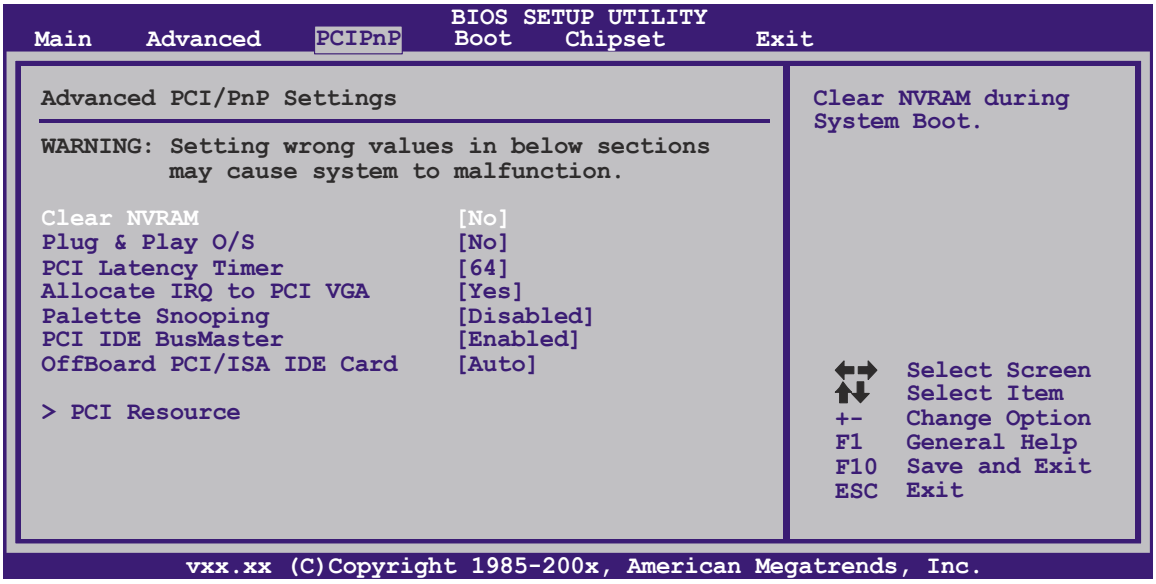
This item allows you to select the emulation type of the USB mass storage device.

Options: Auto (Default) / Floppy / Forced FDD / Hard Disk / CDROM

4.5 PCI/PnP Menu

This section describes configuring the PCI bus system. PCI, or Personal Computer Interconnect, is a system which allows I/O devices to operate at speeds nearing the speed of the CPU itself uses when communicating with its own special components.

Note **Beware of that setting inappropriate values in items of this menu may cause system to malfunction.**


BIOS SETUP UTILITY
Main Advanced PCIPnP Boot Chipset Exit
Advanced PCI/PnP Settings
WARNING: Setting wrong values in below sections may cause system to malfunction.
Clear NVRAM [No]
Plug & Play O/S [No]
PCI Latency Timer [64]
Allocate IRQ to PCI VGA [Yes]
Palette Snooping [Disabled]
PCI IDE BusMaster [Enabled]
OffBoard PCI/ISA IDE Card [Auto]
> PCI Resource
Clear NVRAM during System Boot.
Select Screen
Select Item
+- Change Option
F1 General Help
F10 Save and Exit
ESC Exit
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- **Clear NVRAM [No]**

This item allows you to clear the data in the NVRAM (CMOS) by selecting "Yes".

Options: No (Default) / Yes

- **Plug & Play OS [No]**

When set to YES, BIOS will only initialize the PnP cards used for the boot sequence (VGA, IDE, SCSI). The rest of the cards will be initialized by the PnP operating system like Window™ 95. When set to NO, BIOS will initialize all the PnP cards. For non-PnP operating systems (DOS, Netware™), this option must set to NO.

Options: No (Default) / Yes

- **PCI Latency Timer [64]**

This item controls how long a PCI device can hold the PCI bus before another takes over. The longer the latency, the longer the PCI device can retain control of the bus before handing it over to another PCI device.

Options: 64 (Default) / 32 / 96 / 128 / 160 / 192 / 224 / 248

- **Allocate IRQ to PCI VGA [Yes]**

This item allows BIOS to choose a IRQ to assign for the PCI VGA card.

Options: Yes (Default) / No

- **Palette Snooping [Disabled]**

Some old graphic controllers need to "snoop" on the VGA palette and then map it to their display as a way to provide boot information and VGA compatibility. This item allows such snooping to take place.

Options: Disabled (Default) / Enabled

- **PCI IDE BusMaster [Enabled]**

This item is a toggle for the built-in driver that allows the onboard IDE controller to perform DMA (Direct Memory Access) transfers.

Options: Enabled (Default) / Disabled

- **OffBoard PCI/ISA IDE Card [Auto]**

Some PCI IDE cards may require this to be set to the PCI slot number that is holding the card.

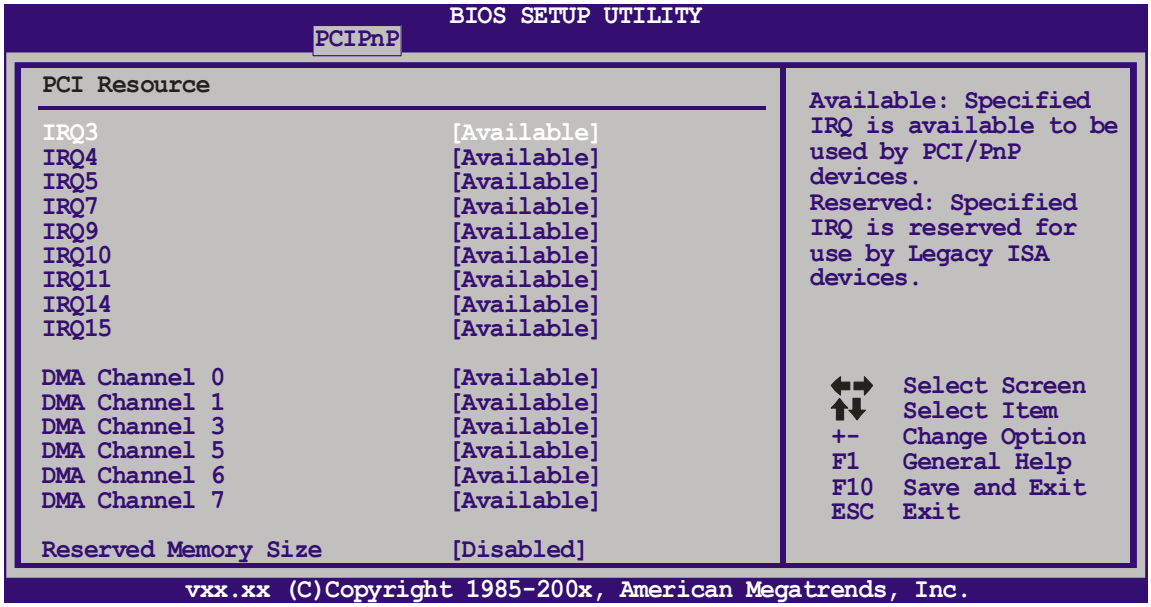
Options: Auto (Default) / PCI Slot1 ~ 6

- **OffBoard PCI/ISA Primary & Secondary IRQ [Disabled]**

This item allows you to set IRQ of non-onboard PCI/ISA IDE controller adapter.

Options: Disabled (Default) / INTA / INTB / INTC / INTD / Hardwired

4.5.1 PCI Resource



- **IRQ3/4/5/7/9/10/11/14/15 [Available]**

These items will allow you to assign each system interrupt a type, depending on the type of device using the interrupt. The option "Available" means the IRQ is going to assign automatically.

Options: Available (Default) / Reserved

- **DMA Channel 0/1/3/5/6/7 [Available]**

These items will allow you to assign each DMA channel a type, depending on the type of device using the channel. The option "Available" means the channel is going to assign automatically.

Options: Available (Default) / Reserved

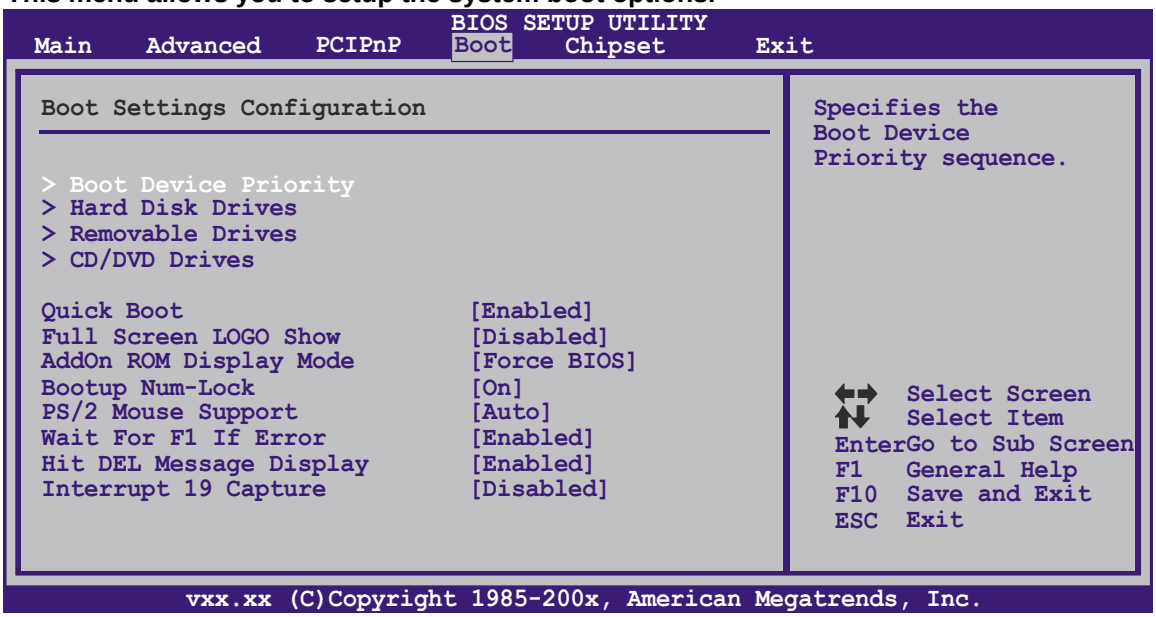
- **Reserved Memory Size [Disabled]**

This item allows BIOS to reserve certain memory size for specific PCI device.

Options: Disabled (Default) / 16K / 32K / 64K

4.6 Boot Menu

This menu allows you to setup the system boot options.


BIOS SETUP UTILITY
Main Advanced PCIPnP Boot Chipset Exit
Boot Settings Configuration
> Boot Device Priority
> Hard Disk Drives
> Removable Drives
> CD/DVD Drives
Quick Boot [Enabled]
Full Screen LOGO Show [Disabled]
AddOn ROM Display Mode [Force BIOS]
Bootup Num-Lock [On]
PS/2 Mouse Support [Auto]
Wait For F1 If Error [Enabled]
Hit DEL Message Display [Enabled]
Interrupt 19 Capture [Disabled]
Specifies the Boot Device Priority sequence.
Select Screen
Select Item
Enter Go to Sub Screen
F1 General Help
F10 Save and Exit
ESC Exit
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- **Boot Device Priority**

Items in this sub-menu specify the boot device priority sequence from the available devices. The number of device items that appears on the screen depends on the number of devices installed in the system.

- **Hard Disk Drives**

The BIOS will attempt to arrange the hard disk boot sequence automatically. You can also change the booting sequence. The number of device items that appears on the screen depends on the number of devices installed in the system.

- **Removable Drives**

The BIOS will attempt to arrange the removable drive boot sequence automatically. You can also change the booting sequence. The number of device items that appears on the screen depends on the number of devices installed in the system.

- **CD/DVD Drives**

The BIOS will attempt to arrange the CD/DVD drive boot sequence automatically. You can also change the booting sequence. The number of device items that appears on the screen depends on the number of devices installed in the system.

- **Quick Boot [Enabled]**

Enabling this option will cause an abridged version of the Power On Self-Test (POST) to execute after you power up the computer.

Options: Enabled (Default) / Disabled

- **Full Screen LOGO Display [Disabled]**

This item allows you to enable/disable Full Screen LOGO Show function.

Options: Disabled (Default) / Enabled

- **AddOn ROM Display Mode [Force BIOS]**

This item sets the display mode for option ROM.

Options: Force BIOS (Default) / Keep Current

- **Bootup Num-Lock [On]**

Selects the NumLock State after the system switched on.

Options: On (Default) / Off

- **PS/2 Mouse Support [Auto]**

This BIOS feature determines if the BIOS should reserve IRQ12 for the PS/2 mouse or allow other devices to make use of this IRQ.

Options: Auto (Default) / Disabled / Enabled

- **Wait for 'F1' If Error [Enabled]**

This BIOS feature controls the system's response when an error is detected during the boot sequence.

Options: Enabled (Default) / Disabled

- **Hit 'DEL' Message Display [Enabled]**

This BIOS feature allows you to control the display of the Hit "DEL" to enter Setup message during memory initialization.

Options: Enabled (Default) / Disabled

- **Interrupt 19 Capture [Disabled]**

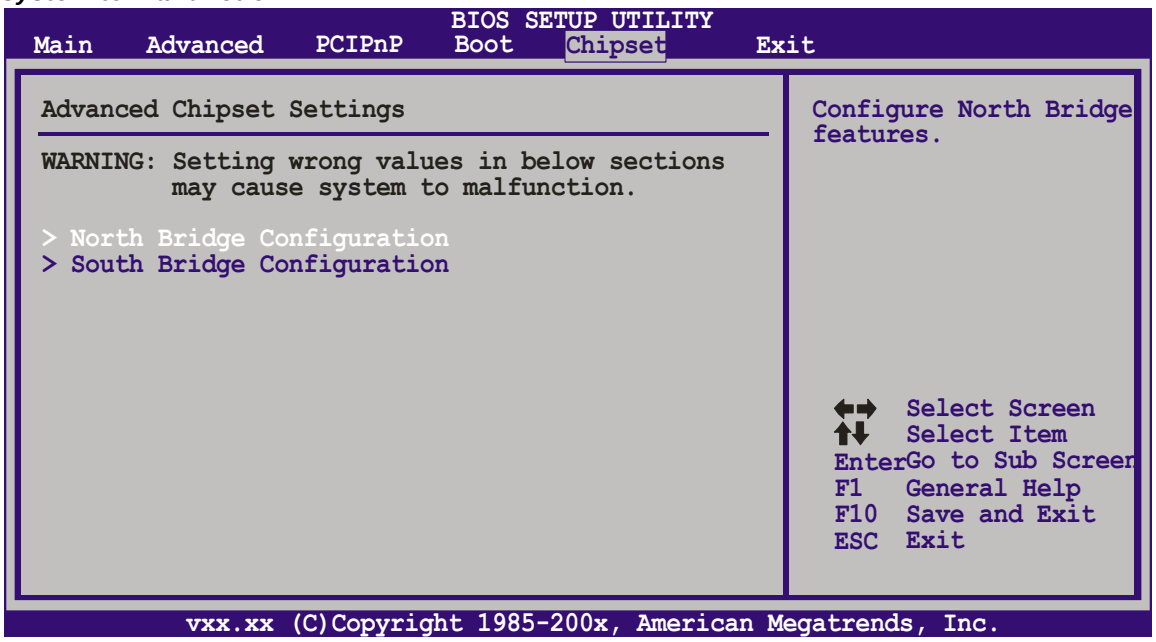
Interrupt 19 is the software interrupt that handles the boot disk function. When set to Enabled, this item allows the option ROMs to trap interrupt 19.

Options: Disabled (Default) / Enabled

4.7 Chipset Menu

This submenu allows you to configure the specific features of the chipset installed on your system. This chipset manage bus speeds and access to system memory resources, such as DRAM. It also coordinates communications with the PCI bus.

NOTE: Beware of that setting inappropriate values in items of this menu may cause system to malfunction.


BIOS SETUP UTILITY
Main Advanced PCIPnP Boot Chipset Exit
Advanced Chipset Settings
WARNING: Setting wrong values in below sections may cause system to malfunction.
> North Bridge Configuration
> South Bridge Configuration
Configure North Bridge features.
Select Screen
Select Item
EnterGo to Sub Screen
F1 General Help
F10 Save and Exit
ESC Exit
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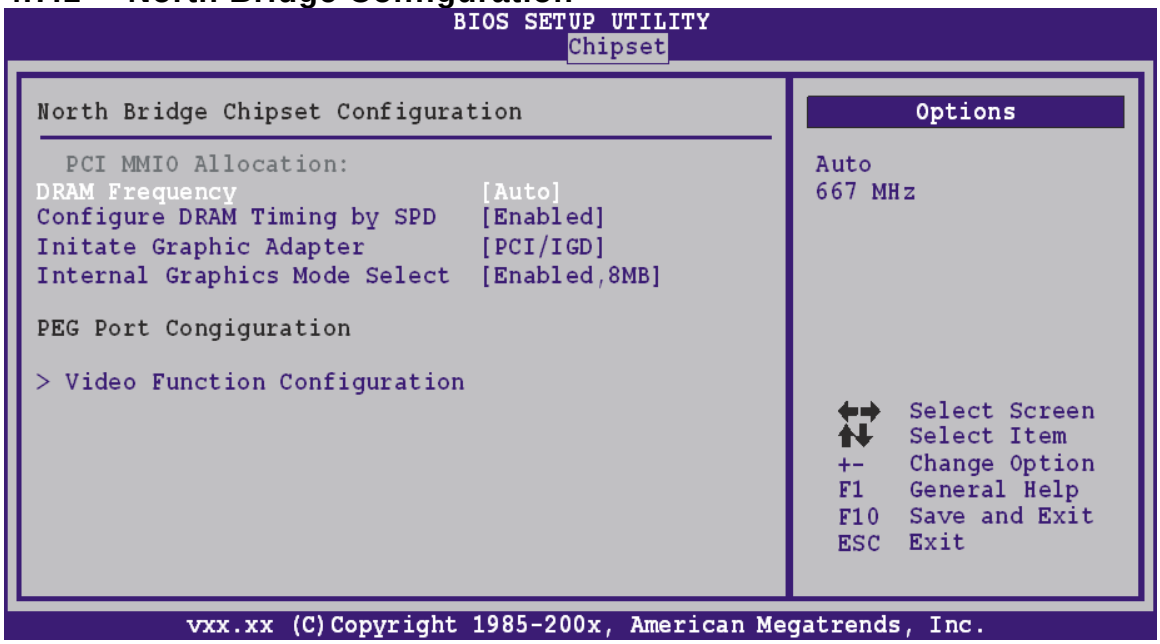
4.7.1 North Bridge Configuration



- **DRAM Frequency [Auto]**

This item allows you to set the frequency of DRAM.

Options: Auto (Default) / 800MHz

- **Configure DRAM timing by SPD [Enabled]**

This item allows you .to determine DRAM timing by SPD

Options: Enabled (Default) / Disabled

- **Imitate Graphic Adapter [PCI/IGD]**

Select which graphics controller to use as the primary boot device.

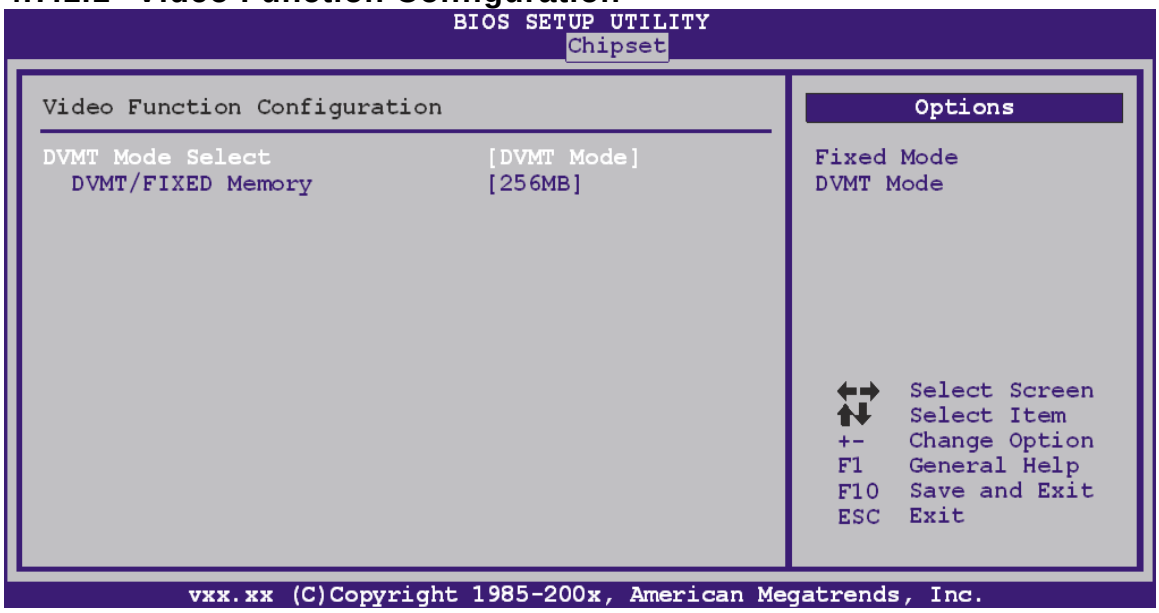
Options: PCI/IGD (Default) / IGD

- **Internal Graphics Mode Select [8MB]**

Select the amount of system memory used by the Internal graphics device. This item will be different as your memory modules. When the memory size is decided, this frame buffer size will also be fixed.

Options: Enabled, 8MB (Default)

4.7.1.1 Video Function Configuration



- **DVMT Mode Select [DVMT Mode]**

This item allows you to select the DVMT mode.

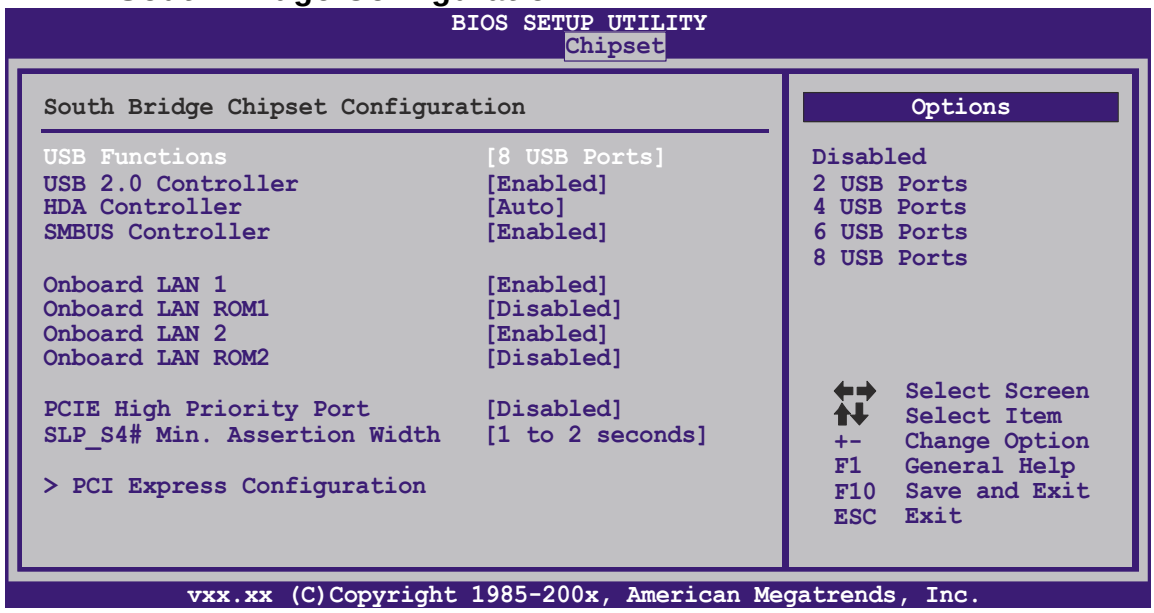
Options: DVMT Mode (Default) / Fixed Mode

- **DVMT/FIXED Memory [256MB]**

DVMT stands for "Dynamic Video Memory Technology". This is an enhancement of the unified memory architecture (UMA) concept. DVMT will set the optimum amount of memory to be allocated for a balance between graphics and system performance. DVMT dynamically respond to system requirements and applications demands, by allocating the proper amount of display, texturing and buffer memory after the operating system has booted.

Options: 256MB (Default) / 128MB / Maximum DVMT

4.7.2 South Bridge Configuration



- **USB Functions [8 USB Ports]**

The item determines the activation of USB port.

Options: 8 USB Ports (Default) / 2 USB Ports / 4 USB Ports / 6 USB Ports / Disabled

- **USB 2.0 Controller [Enabled]**

This entry is to enabled/ disabled EHCI controller only. This BIOS itself may/may not have high speed USB support. If the BIOS has high speed USB support, the support will be automatically turned on when high speed devices were attached.

Options: Enabled (Default) / Disabled

- **HDA Controller [Auto]**

This item allows you to control the Audio support.

Options: Auto (Default) / Disabled

- **SMBUS Controller [Enabled]**

This BIOS feature controls the I/O buffers for the SMBus.

Options: Enabled (Default) / Disabled

- **Onboard LAN 1/2 [Enabled]**

This item allows you to enable or disable the Onboard LAN.

Options: Enabled (Default) / Disabled

- **Onboard LAN ROM 1/2 [Disabled]**

This item allows you to select the Onboard LAN Boot ROM.

Options: Disabled (Default) / Enabled

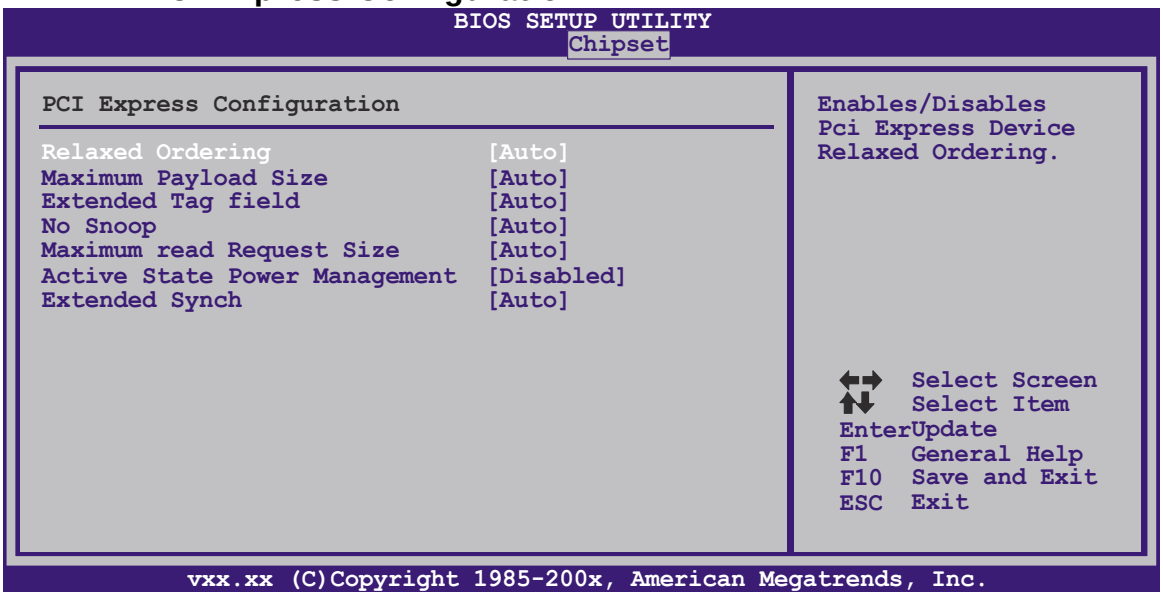
- **PCIE High Priority Port [Disabled]**

Options: Disabled (Default) / Port 0 ~ Port 3

- **SLP_S4# Min. Assertion Width [1 to 2 seconds]**

Options: 1 to 2 seconds (Default) / 4 to 5 seconds / 3 to 4 seconds / 2 to 3 seconds

4.7.2.1 PCI Express Configuration



- **Relaxed Ordering [Auto]**

The item enables/disables PCI Express Device Relaxed Ordering.

Options: Auto (Default) / Disabled / Enabled

- **Maximum Payload Size [Auto]**

The item sets Maximum Payload of PCI Express Device or allows System BIOS to select the value.

Options: Auto (Default) / 128 Byte / 256 Byte / 512 Byte / 1024 Byte / 2048 Byte / 4096 Byte

- **Extended Tag Field [Auto]**

If this item is enabled, the system allows Device to use 8-bit TAG field as a requester.

Options: Auto (Default) / Disabled / Enabled

- **No Snoop [Auto]**

The item enables/disables PCI Express Device No Snoop option.

Options: Auto (Default) / Disabled / Enabled

- **Maximum Read Request Size [Auto]**

The item sets Maximum Read Request Size of PCI Express Device or allows System BIOS to select the value.

Options: Auto (Default) / 128 Bytes / 256 Bytes / 512 Bytes / 1024 Bytes / 2048 Bytes / 4096 Bytes

- **Active State Power Management [Disabled]**

The item enables/disables PCI Express L0s and L1 link power states..

Options: Disabled (Default) / Enabled

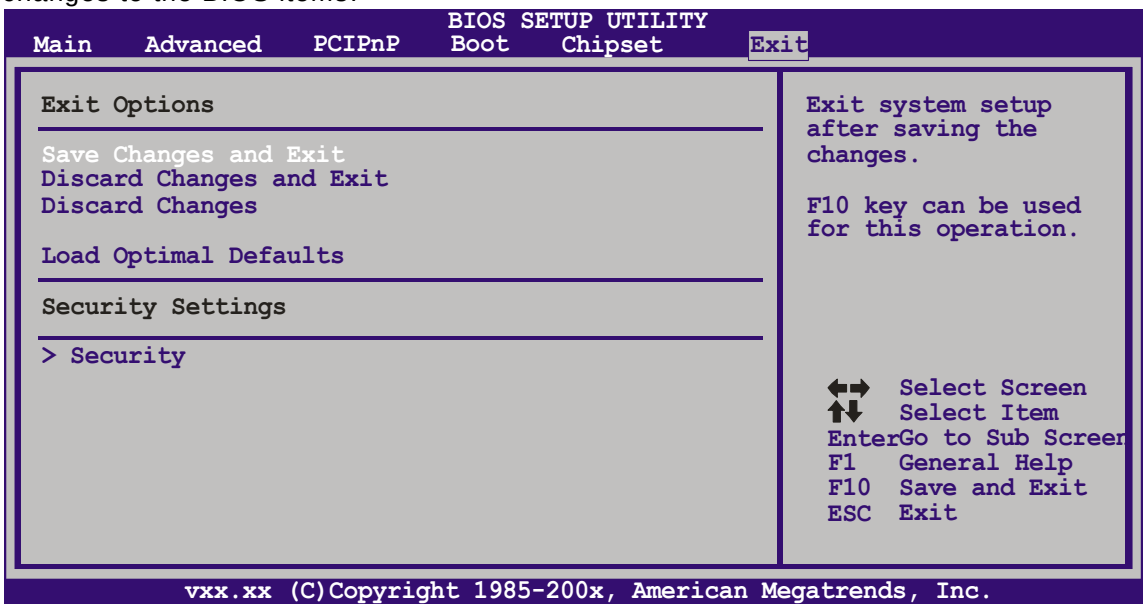
- **Extended Synch [Auto]**

If this item is enabled, the system allows generation of Extended Synchronization patterns.

Options: Auto (Default) / Disabled / Enabled

4.8 Exit Menu

This menu allows you to load the optimal default settings, and save or discard the changes to the BIOS items.



- **Save Changes and Exit**

Save all configuration changes to CMOS RAM and exit setup.

- **Discard Changes and Exit**

Abandon all changes made during the current session and exit setup.

- **Discard Changes**

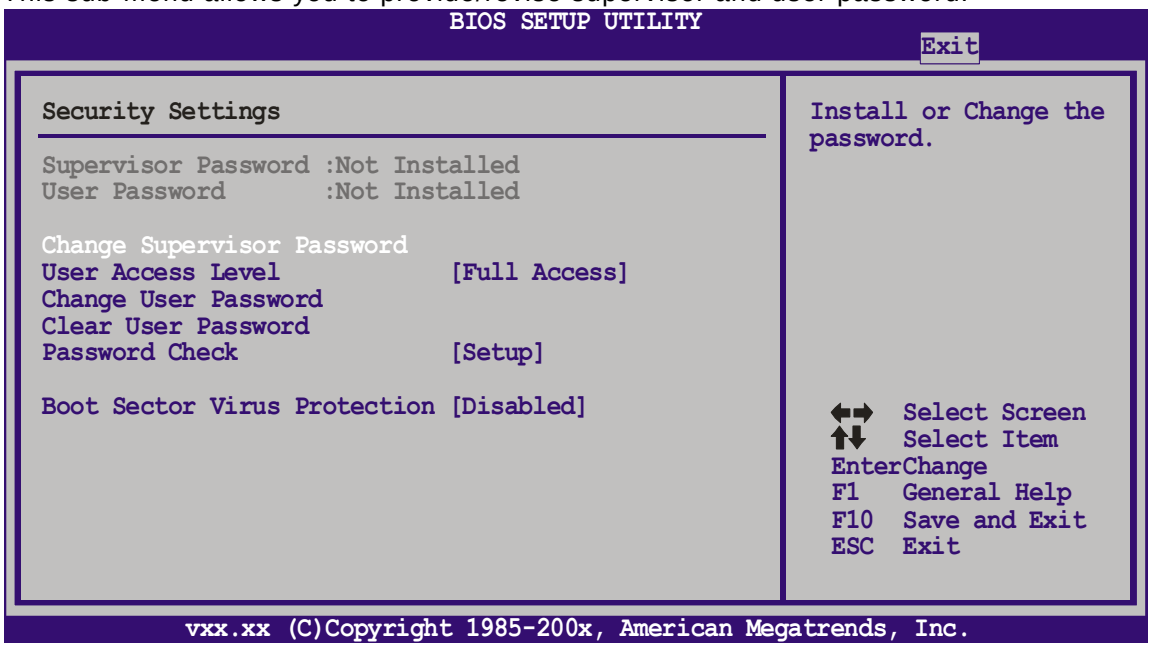
Abandon all changes made during the current session and restore the previously saved values.

- **Load Optimal Defaults**

This selection allows you to reload the BIOS when problem occurs during system booting sequence. These configurations are factory settings optimized for this system.

4.8.1 Security

This sub-menu allows you to provide/revise supervisor and user password.



- **Change Supervisor Password**

Setting the supervisor password will prohibit everyone except the supervisor from making changes using the CMOS Setup Utility. You will be prompted with to enter a password.

- **User Access Level [Full Access]**

This item allows supervisor to set the user level.

Options: Full Access (Default) / No Access / View Only / Limited

- **Change User Password**

If the Supervisor Password is not set, then the User Password will function in the same way as the Supervisor Password. If the Supervisor Password is set and the User Password is set, the "User" will only be able to view configurations but will not be able to change them.

- **Clear User Password**

This item is for clearing user password.

- **Password Check [Setup]**

This item is for setting the timing that checking password.

Options: Setup (Default) / Always

- **Boot Sector Virus Protection [Disabled]**

This option allows you to choose the VIRUS Warning feature that is used to protect the IDE Hard Disk boot sector. If this function is enabled and an attempt is made to write to the boot sector, BIOS will display a warning message on the screen and sound an alarm beep.

Options: Disabled (Default) / Enabled